

1. Falls on the Sanaga

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GEOGRAPHICAL HANDBOOK SERIES

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FRENCH
EQUATORIAL AFRICA
& CAMEROONS

DECEMBER 1942

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NAVAL INTELLIGENCE DIVISION

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PREFACE

IN 1915 a Geographical Section was formed in the Naval Intelligence Division of the Admiralty to write Geographical Handbooks on various parts of the world. The purpose of these handbooks was to supply, by scientific research and skilled arrangement, material for the discussion of naval, military, and political problems, as distinct from the examination of the problems themselves. Many distinguished collaborators assisted in their production, and by the end of 1918 upwards of fifty volumes had been produced in Handbook and Manual form, as well as numerous short-term geographical reports. The demand for these books increased rapidly with each new issue, and they acquired a high reputation for accuracy and impartiality. They are now to be found in Service Establishments and Embassies throughout the world, and in the early years after the last war were much used by the League of Nations.

The old Handbooks have been extensively used in the present war, and experience has disclosed both their value and their limitations. On the one hand they have proved, beyond all question, how greatly the work of the fighting services and of Government Departments is facilitated if countries of strategic or political importance are covered by handbooks which deal, in a convenient and easily digested form, with their geography, ethnology, administration, and resources. On the other hand it has become apparent that something more is required to meet present-day requirements. The old series does not cover many of the countries closely affected by the present war (e.g. Germany, France, Poland, Spain, Portugal, to name only a few); its books are somewhat uneven in quality, and they are inadequately equipped with maps, diagrams, and photographic illustrations.

The present series of Handbooks, while owing its inspiration largely to the former series, is in no sense an attempt to revise or re-edit that series. It is an entirely new set of books, produced in the Naval Intelligence Division by trained geographers drawn largely from the Universities, and working at sub-centres established at Oxford and Cambridge, and is printed by the Oxford and Cambridge University Presses. The books follow, in general, a uniform scheme, though minor modifications will be found in particular cases; and they are furnished with numerous maps and illustrations.

The purpose of the books is primarily naval. They are designed

first to provide, for the use of Commanding Officers, information in a comprehensive and convenient form about countries which they may be called upon to visit, not only in war but in peace-time; secondly, to maintain the high standard of education in the Navy and, by supplying officers with material for lectures to naval personnel ashore and afloat, to ensure for all ranks that visits to a new country shall be both interesting and profitable.

Their contents are, however, by no means confined to matters of purely naval interest. For many purposes (e.g. history, administration, resources, communications, &c.) countries must necessarily be treated as a whole, and no attempt is made to limit their treatment exclusively to coastal zones. It is hoped therefore that the Army, the Royal Air Force, and other Government Departments (many of whom have given great assistance in the production of the series) will find these handbooks even more valuable than their predecessors proved to be both during and after the last war.

This volume has been prepared by the Oxford Sub-centre of the Naval Intelligence Division under the direction of Professor and Lieut.-Colonel K. Mason, M.C., M.A., R.E., of the School of Geography, University of Oxford, and is the work of a number of contributors, whose names are given on page 493.

J. H. GODFREY
Director of Naval Intelligence
OCTOBER 1942

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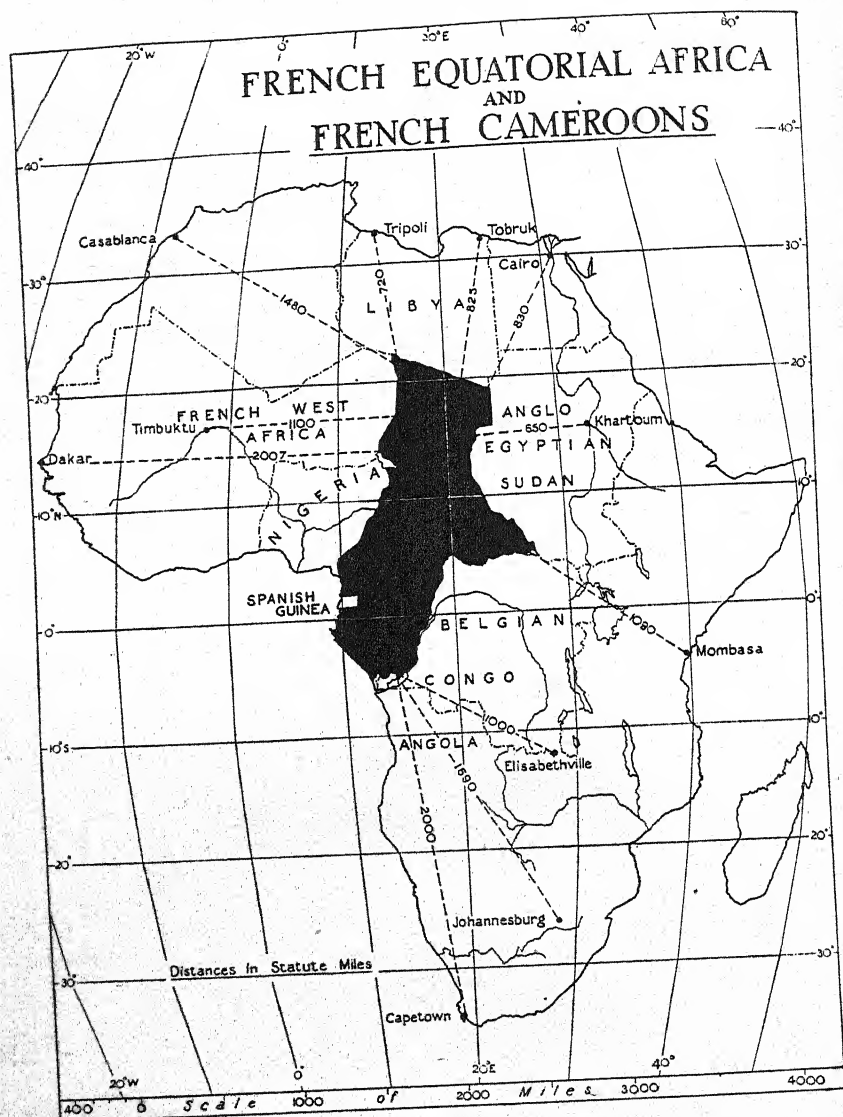


FIG. I. *The Heart of Africa*

CHAPTER I

INTRODUCTION

THE territory which is French Equatorial Africa and the French Cameroons is so vast, and occupies so much of the centre of Africa, that a mental effort is necessary to grasp the distances involved. Fig. 1 records a few of them.

From north to south, French Equatorial Africa stretches from $23^{\circ} 30'$ N. to $5^{\circ} 02'$ S., or over $28\frac{1}{2}$ degrees of latitude: a distance of 1,960 miles. From the west of Gabon ($8^{\circ} 42'$ E.) to the east of French Equatorial Africa ($27^{\circ} 36'$ E.) is 19 degrees of longitude or 1,290 miles. We are considering an area whose length is the distance from the Faroe Islands to Gibraltar or from Washington to the Panama Canal, and whose breadth that from London to Danzig, or from New York to St. Paul (*see* Fig. 2). In area (1,028,900 square miles, including the French Cameroons) it is 12 times as large as Great Britain. Its population (6,032,500) is but one-seventh of ours. In climate it varies from the drought and desolation of the Sahara to the steaming forest belt; in rainfall from 200 inches a year to a bare inch. In man, beast, and plant it has samples of nearly every African type. Here and there, north of the forest belt, on the plateaux, along the volcanic highlands of the Cameroons, conditions are healthy; elsewhere sleeping-sickness and malaria take heavy toll. If all Black Africa has suffered from perpetual wars, slave-raiding, and pestilence, French Equatorial Africa has suffered most. It was the last country to be purged of the first two of these evils; it was the last to be explored, and the last to come under European influence. If undeveloped Black Africa was, as a whole, unfitted to support large native populations, French Equatorial Africa was one of its least promising parts.

Yet in a developed Africa it would be at the very heart. The great Saharan transcontinental railway was destined to pass through it from north to south. A transverse line from Dakar to Khartoum has been contemplated. Trunk airways must pass over it. African high roads must cross it. Even now by rail, by water, and by road it links west to east. With these advantages of position, its store of tropical products, and its potential water-power, a prosperous future would seem assured. At present it lacks man-power, communications, and capital.

If there is such a thing as a 'pure' race it is not to be found in

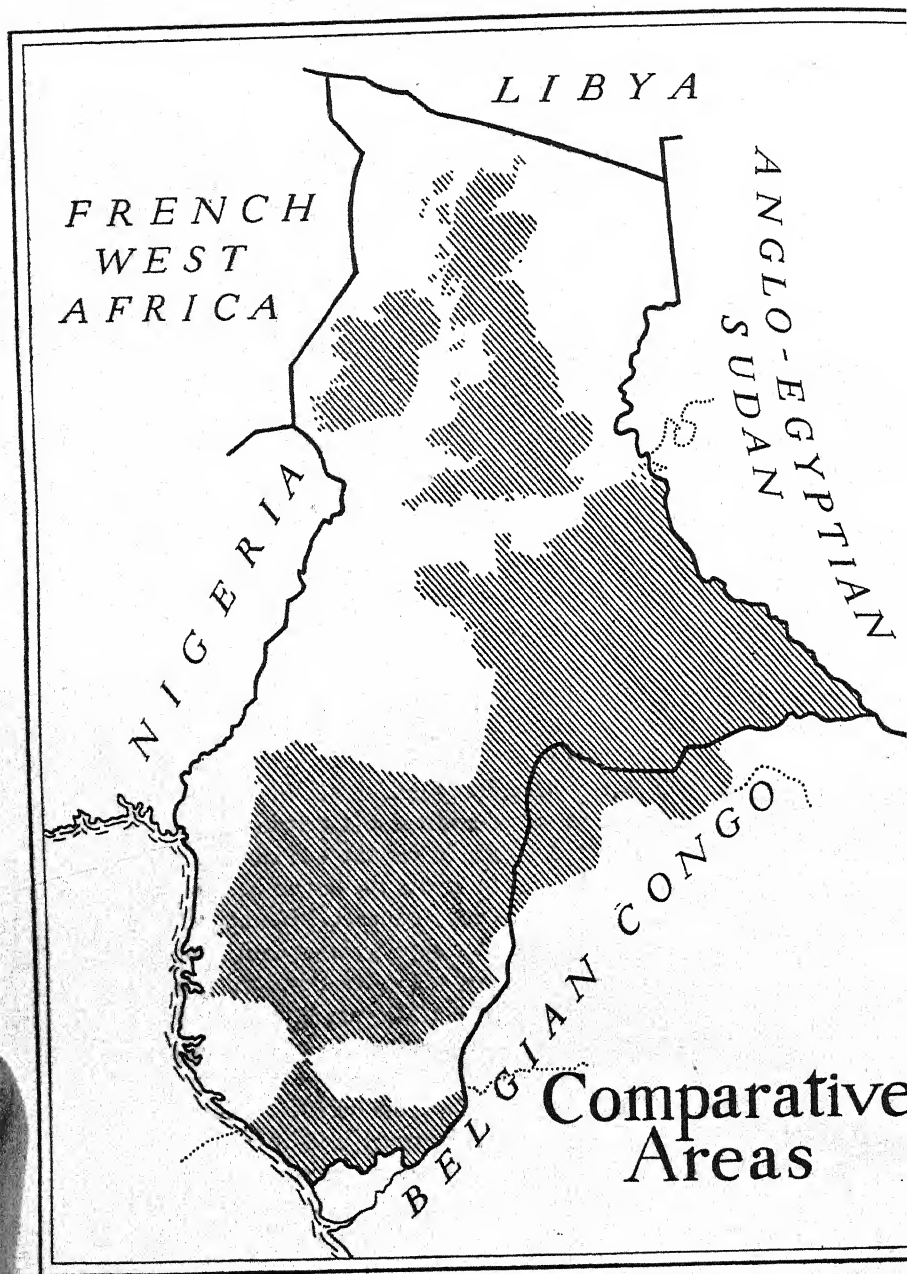


FIG. 2

Africa, and at its very centre the mixture is striking. Pygmies, perhaps the earliest inhabitants, are scattered here and there through the forest belt, living in small hunting-communities. The negroes proper have passed through on their way to the west and left fragments and traces in their wake. Behind them Bantu-speaking folk, whose blood is nearly, sometimes almost wholly, akin, show traces of Hamitic and other strains, and these traces grow in significance as one passes eastwards. The boundary between Bantu and negro languages runs roughly from west to east through Douala. From the east have come vigorous upstanding Nilotic tribes with, perhaps, much the same racial make-up as the Bantu but speaking different tongues. From the north-east have come Arabs, growing darker and more negroid with time and decrease of latitude, whilst to the north are Arabized or, at least, Moslemized Berbers such as the veiled Tuareg. Circling round from the east, through the Sahara, and coming now from the west, the copper-skinned Hamitic Fulani appears as master and Moslem missionary. Hausa from the west percolate everywhere as pedlars and tradesmen. Language groups may number a score; dialects, mutually incomprehensible, several hundred. There is no lingua franca to match the Swahili of the east coast unless it be the 'pidgin English' of the coast—the language of trade and the medium of instruction, even for German Askaris, before the last war. French begins to win its way. Portuguese words have passed into the common tongues, and the African, innocent of inhibitions, picks up dialect after dialect with ready assurance.

The country itself is of great variety and yet of large and monotonous feature. The desert, or the forest, stretches unbroken over areas larger than Great Britain. Vast uplands alternate with marshes of equal size. Everywhere the country is modelled in steps with no evenly graded slopes, and its innumerable rivers meander swampily across long levels, dropping suddenly in falls and rapids to the next step below. Two enormous saucers, the Chad depression to the north and the old Congo Lake to the south-east, the one arid and the other soaked, are ringed with highlands. In spite of its variety, however, it does include three or four clearly marked zones which determine the character of life and development (*see* Fig. 3).

In the dry north are tents, camels, and date palms. On the southern rim of the Chad depression are a wealth of cattle, herds of game, a growing cotton industry, and the densest population. As one passes gradually through the agricultural orchard bush to the forest, population shrinks, the tsetse-fly forbids cattle, and elephant, hippopotamus,

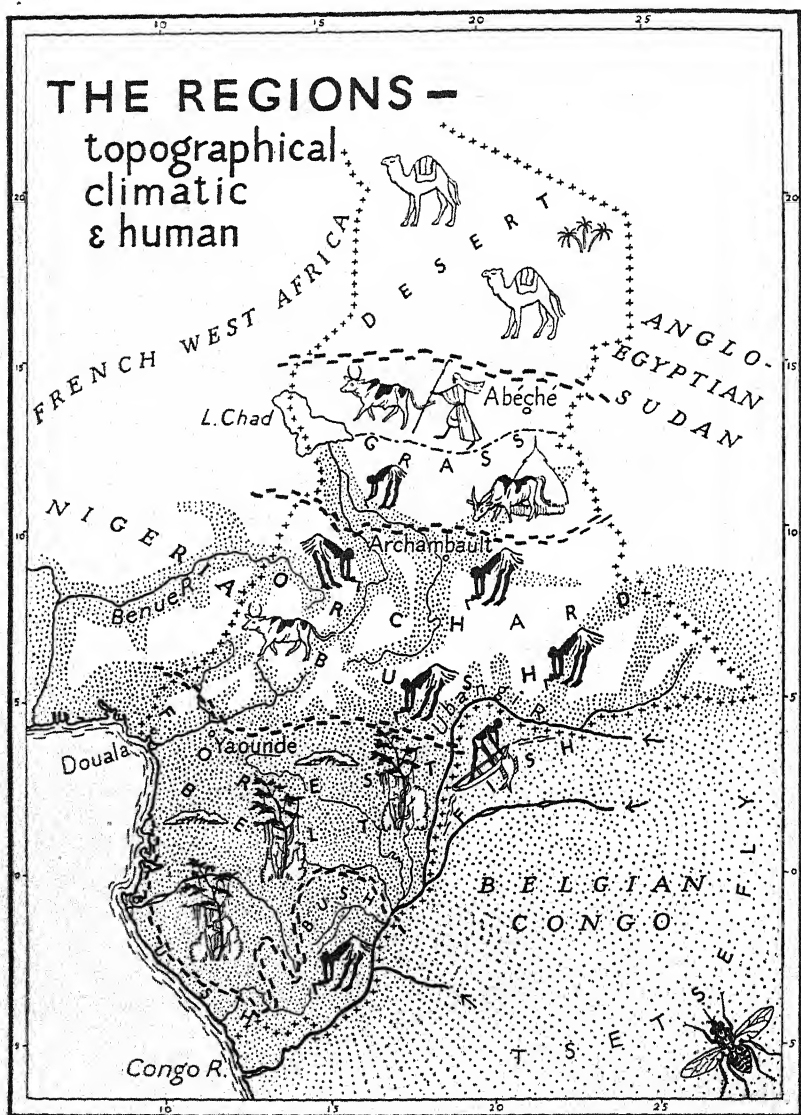


FIG. 3

and python find sanctuary. Shutting all from the sea are ranges of forest-clad hills. On the shore itself the natural harbours lie to the north where the volcanic ranges come down to the sea, and south of them the Benguela current, still cool from its Antarctic origin, has smoothed the long white coastline, turned river-mouths northwards and fringed them with bars.

Arab influence became important in the north during the seventh century; European began with Portuguese exploration in the fifteenth. The motive of both may be summed up as slaves and ivory. Slavery was an African habit, and for how long the population had been kept down by it there is no record. Its evil effects were greatly increased by foreign intervention. Arabs rarely penetrated the forest, however, and although European goods filtered far and wide inland, Europeans themselves did not get beyond the first line of mountains till well on in the nineteenth century.

The Royal Geographical Society owes its birth, as the African Association (in 1788), to the desire to know more of Central Africa, and as late as 1870 the Ubangi was thought to be a tributary of the Niger (*see* Fig. 61 for exploration).

French occupation is the work of certain devoted Frenchmen rather than that of France. De Brazza was the Lyautey of French Equatorial Africa, and his lieutenants, amongst whom Marchand of Fashoda fame is to be remembered, worked and often died, single-mindedly, to realize his dream. Amongst that gallant band none has served the territory better than Bruel, whose able pen has enlisted sympathy and help for the land he worked for. France, fully occupied with older colonies, gave scanty encouragement.

For a brief summary of the small history French Equatorial Africa possesses *see* Fig. 4.

This book treats of the French Mandated Cameroons as well as of French Equatorial Africa. The history and development of the Cameroons reflect happier and healthier factors. Douala was, for long, in touch with European trade. The volcanic mountains and plateaux are fertile and well populated and the harbours good. Opened first by British missionaries and traders, it fell to Germany in 1885, was greatly enlarged at the expense of French Equatorial Africa after the Agadir incident, and, except for a narrow strip to the west, went to France as a Mandate in 1918. (*See* Fig. 62, p. 247.)

Lack of man-power is the overriding factor throughout, and is due to malnutrition and to the wars and slave-raids of the past. Recovery has to fight a very high infant mortality as well as tropical disease.

OUTLINE OF HISTORY

PRE HISTORY OF CENTRAL AFRICA IN BROWN
HISTORY OF FRENCH EQUATORIAL AFRICA AND FRENCH CAMEROONS IN BLACK

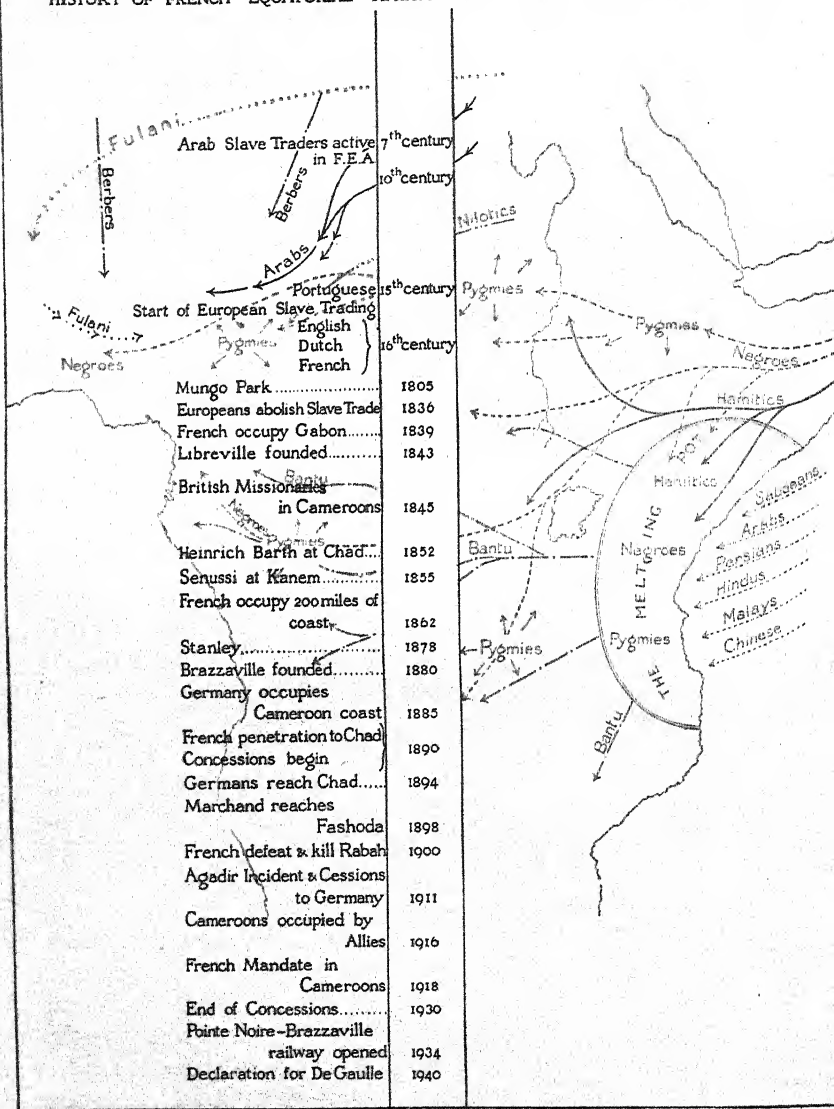


FIG. 4

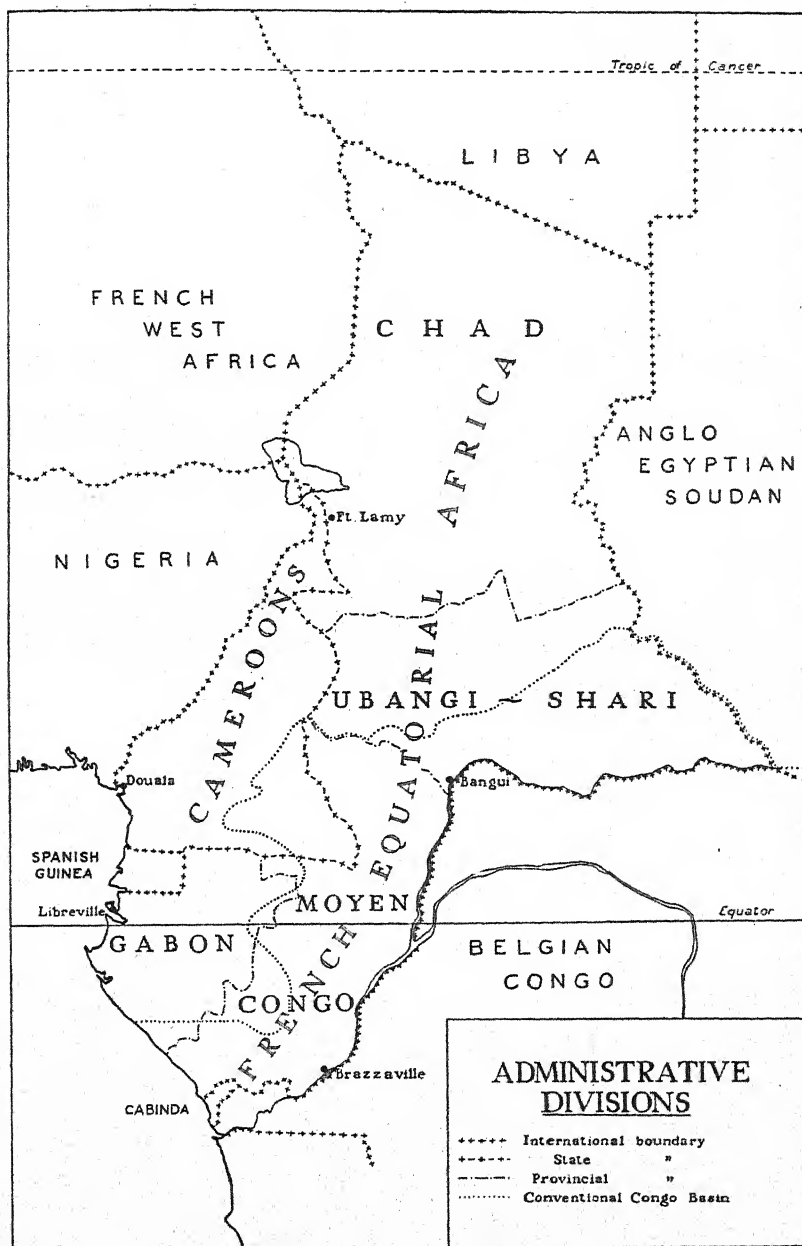


FIG. 5

Even in far better developed territories, such as Nigeria, primitive methods of transport by canoe and head portage are a tax on manpower. In French Equatorial Africa they are a heavy burden, whilst the congregation of labour, such as was required for the construction of the Congo-Ocean railway, robs other industry, and is apt to end in heavy mortality. With man and energy just sufficient for the needs of the day, there is little over for the construction of those much wanted communications without which the country can hardly develop itself.

Yet, in declaring for de Gaulle in 1940, this vast land has thrown itself open to a wide and friendly audience. Swift and effective development may be a consequence, for its products as well as its rights of way are of great value in the struggle for freedom.

In the following chapters the names of administrative areas and subdivisions may prove a stumbling block. Administrative arrangements are fully dealt with in Chapter IX, but Fig. 5 will give enough idea for understanding its broad lines.

In a precise sense it may be said that French Equatorial Africa is unmapped, but many positions have been fixed astronomically, and traverses, sometimes careful, sometimes rough, unite them. Place-names are spelt with a Shakespearian disregard for uniformity, and refer, as often as not, to a few huts or a small administrative centre. All place-names are given a map reference in the index, and are to be found in the topographical map in the pocket at the end.

In the pocket is also a map of communications on which appear the principal roads, the navigable waterways, and the railways.

A dozen names, familiar from centuries of trading on the coast, are spelt English fashion. For the rest French spellings have been followed.

CHAPTER II

GEOLOGY AND GENERAL PHYSICAL DESCRIPTION

A. GEOLOGY

(See FIG. 6)

FRENCH EQUATORIAL AFRICA is divided into four parts, so far as its geology is concerned, and these in turn dominate its physical features. From south to north they are:

- (1) The Congo basin.
- (2) The Guinea ridge.
- (3) The Lake Chad basin.
- (4) The Tibesti massif.

The second and fourth consist essentially of the most ancient rocks (Archaean and Pre-Cambrian gneisses and schists), with intrusions, of which some are metamorphosed, others unchanged, and probably of more than one age. Upon this ancient complex lie Palaeozoic and younger sandstones, clays, and shales. Here and there it is penetrated by more recent volcanic pipes or surmounted by the lavas and volcanoes themselves, of which some seem to have become extinct in geologically very recent times.

The first and third are enormous depressions, which, during certain periods, have been sinking slowly. Both were originally internal continental basins, separated from the Atlantic by broad outcrops of the ancient rocks with their sedimentary covering rocks. The Chad basin retains its enclosed character, but the Congo basin is now drained to the sea. The difference is caused partly by geology and partly by climate. The Chad basin has sunk in recent geological times, and, though much of it has a considerable surface drainage, most has only a small rainfall: the Congo basin, on the other hand, has a very heavy rainfall, and its resulting mighty rivers have forced an exit to the sea.

The geological history of the country has been determined, almost exclusively, by the fortunes of the African platform, which itself is the surface of the most ancient rocks. A distinction must be made between these and all later formations since they represent within themselves a vastly prolonged, and in great part unknown, history

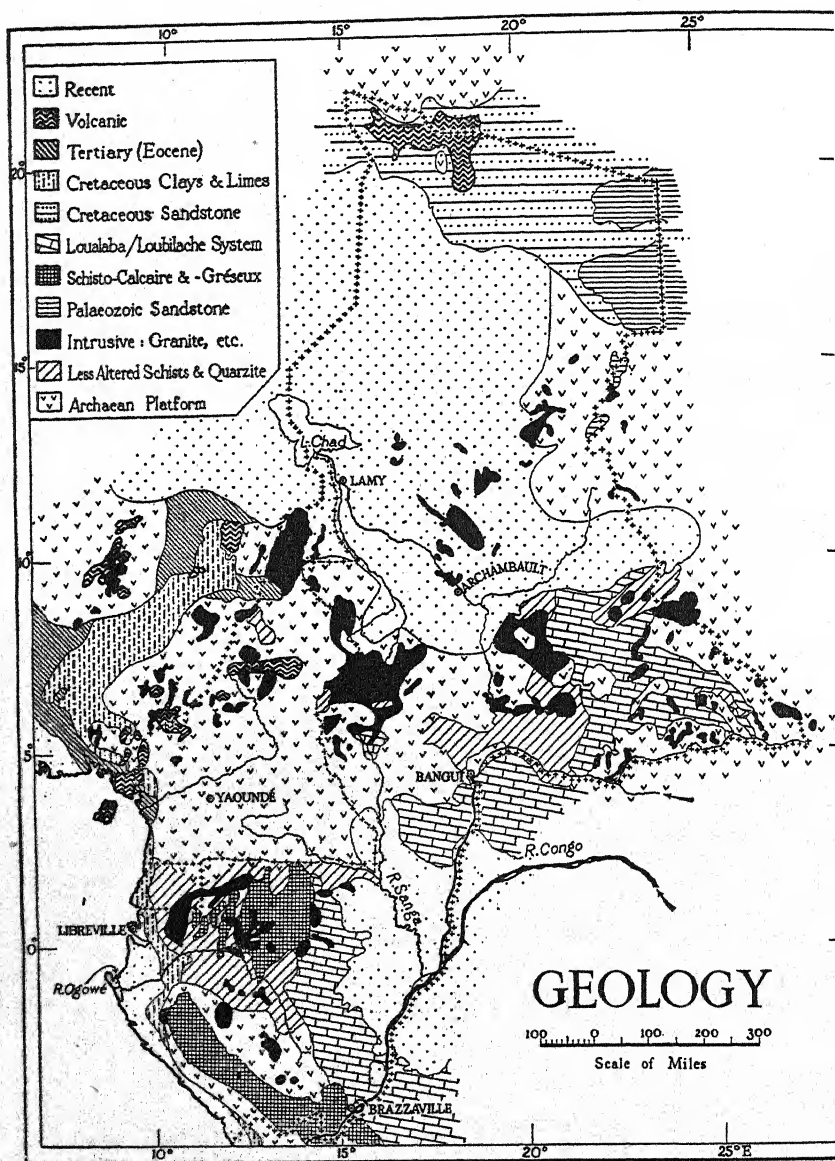


FIG. 6

of accumulation and denudation, invasion by igneous masses, and episodes of mountain-building with consequent metamorphism of all pre-existing rock and contemporary igneous intrusions. The mountains have been worn away and the whole complex reduced to a fairly even surface or platform which may be traced over the entire continent. Wherever it is exposed it has much the same character.

No comparable mountain-building has taken place within the country since the construction of the platform before Palaeozoic times. Wherever the platform has been exposed the process of wearing down has gone on. It happens, therefore, that later rocks of all ages may lie directly upon the worn and upturned edges of the ancient rocks.

The African platform has long been elevated and exposed, from the Atlantic coast, to the south of the French Cameroons and eastwards across the Ubangi-Shari and the Anglo-Egyptian Sudan towards Abyssinia. The elevation of this long feature, referred to for convenience as the 'Guinea Ridge', has been one of the outstanding factors in the geological history of Equatorial Africa. The deposits on the south and north differ from one another, and cannot yet be satisfactorily correlated. There are, in fact, considerable divergences of opinion between British, Belgian, and French geologists, and to eliminate these difficulties the geology of the country south and north of the ridge will now be described separately.

Southern French Equatorial Africa

For several reasons, including the presence of vegetation which obscures exposures of rock, the geology of this part of the colony produces a number of perplexing problems, and at the present time it is still difficult to give a simple account which is also reasonably accurate.

The most ancient rocks are, as stated, widely exposed in the Guinea ridge. From the Atlantic coast to the Ubangi-Shari watershed, and along the Nile-Ubangi divide, highly crystalline gneisses and mica-schists, with numerous large intrusions of igneous rocks, are commonly seen. These are, in general terms, the 'normal' rocks of the ancient complex in Africa. Similarly they are exposed in the southern part of Gabon and Moyen Congo north-west of Brazzaville. But in the Ubangi-Shari watershed and in northern Gabon, less highly altered schists, quartzites, and quartz slates are seen. The two groups of rocks do not seem to be separated by an unconformity. Undoubtedly several phases of sedimentation, intrusion, and folding are

represented, and metamorphism is due sometimes to contact with intrusions, sometimes to dynamic changes. The less metamorphosed rocks are not necessarily highly folded and may be almost horizontal.

The next group of sediments introduce problems of their own. These are the *schisto-calcaire* (older) and *schisto-gréseux* (younger) systems of Gabon and the Belgian Congo. They occupy a syncline in the Lower Congo valley, of which the western flank is strongly folded. They are generally unfossiliferous and are subdivided lithologically: various problematic bodies, regarded by some as fossils, do not at present help towards a solution of the age of the beds. Opinions on this question range from Algonkian to Permo-Trias, but on balance the likelihood of greater age seems the stronger.

The beds are of special interest, from a geological point of view, owing to the presence of glacial tillites in them—i.e. evidence of glacial conditions in the remote past in regions now experiencing an equatorial climate. Such beds are very widely known over Africa south of the equator, and the best known occur in the Karroo system. But other tillites occur in much older beds than these, south of the equator and especially in South Africa, and their value as evidence of age near the equator is small. They are unknown north of the equator.

The *schisto-calcaire* or lower group are probably marine sediments, and have at their base a glacial 'conglomerate'. The *schisto-gréseux* rest upon them, sometimes with patches of torrential deposits at their base, and on the whole this gritty facies may be continental rather than marine. The two systems are reputed to be conformable and the *schisto-gréseux* never to rest directly on the ancient rocks. They have been involved in considerable folding.

The next two systems form the rim of the Lower Congo basin from Brazzaville to the eastern part of Gabon, on the Lower Ubangi, and thence eastward into Belgian territory. They may also be represented on the Ubangi-Shari watershed. These systems are the Loualaba (lower) and Loubilache (upper). At the time of their formation a basin, now occupied by the Lower Congo east of Brazzaville, was evidently already in existence, though it received its final form later. Both stages are evidently continental, little deformed, but faulted and differentially warped, lying in basins and depressions. They are usually unfossiliferous and are sometimes regarded as a single unit. The older beds appear on the sides of the basins from beneath the younger beds of the centre. They are virtually horizontal along and

lake beds, and in places there are glacial deposits at the base. They are not in any way to be confounded with the *schisto-calcaire* on this account. The lower beds in the Belgian Congo contain coal deposits, which are worked; the upper beds are sandstones. Both are correlated with the Karroo system, and in considerable detail. They may span the period between the closing stages of the Palaeozoic and the Trias (inclusive), and equivalent beds on the Atlantic coast may embrace the Jurassic. The major constructive stages of the interior of southern French Equatorial Africa may be said to have been completed at this point. The Cretaceous and Eocene transgressions of the Benue do not seem to have entered the Congo basin, which is floored with recent freshwater deposits, superficial accumulations, alluvium, and the like. Depression, warping, and faulting (for the greater part along old lines) have taken place.

On the coast south of Spanish Guinea are successive bands of marine sediments, sands (possibly Lower Cretaceous), undoubted Cretaceous beds, and wide coastal plains still in process of formation.

The notes above give the main facts about the underlying rocks, but anyone who has travelled in Central Africa will feel that a grave omission has been made if there is no mention of the prevalent red surface soil that is usually called laterite. As the map shows, this laterite is general south of latitude 10° N., and though modern science is now realizing that not all the red soils are true laterite, for practical purposes all are complex decomposition products, with their mineral content reduced to quartz, aluminium silicates, aluminium hydroxides, and hydrated iron oxides. They vary in colour from grey to red, but are mostly reddish, and are mainly due to the climate whatever the parent rocks below may be. For agricultural purposes they are poor, because leached by the heavy rain to various degrees, and in every case have been deprived of their carbonates. The percentage of organic matter is low, and the relatively light—even sandy—surface soil lies on a subsurface of heavier texture.

Northern French Equatorial Africa

The main exposures of the Archaean-Pre-Cambrian complex are in Tibesti, along the frontier of the Anglo-Egyptian Sudan from Ennedi through Dar (country of) Tama and the Massalit country to Dar Sila, the southern watershed of the Shari, and (farther west) outside the colony in Nigeria. These outcrops form the rim of the Chad basin.

Tibesti, having been elevated probably in Tertiary times, has suffered fairly recent intense denudation, and the ancient rocks therefore form some bold country. Elsewhere the platform is worn unequally into ridges and ranges of hills: some of the more durable rocks stand out as peaks among broad areas of rough and rolling country and monotonous plains.

Upon these rocks around Tibesti and in the hills of Erdi and Ennedi rest massive sandstones (probably ranging from Ordovician to Lower Carboniferous). They may be regarded as the near-shore deposits of a sea that stretched westward over much of North and West Africa. In south-west Egypt and the north-western Sudan they thin out and disappear, so it is probable that land lay in these directions. The sea retreated westward during the Carboniferous: deposits of this age may therefore be of continental origin. The sandstones as a whole form wild, rocky uplands with precipitous cliffs and fantastic erosional forms separating boulder-strewn plateaux deeply trenched by watercourses.

Smaller patches of similar sandstones remain as outliers farther south along the Sudan frontier (Dar Zagaoua-Dar Guimr, and Massalit). These Palaeozoic rocks have not been mapped on the south side of the Chad basin, but they are developed on a grand scale around the Ahaggar and other highlands of French West Africa and the French Sahara.

After the retreat of the Palaeozoic sea much of northern Africa remained dry land till the present day. Some of the continental deposits formed thereon are seen in northern French Equatorial Africa. They occupy lowlands between Tibesti, Erdi, and Ennedi and are predominantly sandstones. Immediately to the north they cover vast areas of Italian and Egyptian territory, and stretch eastward to the Red Sea hills.

These are the Nubian Sandstone, in large measure of Cretaceous Age but locally at least including the later Palaeozoic beds of continental origin. They are often mapped jointly with the older Palaeozoic marine sandstones, and much confusion arises. Thus in official French geological maps Nubian Sandstone is shown from Tibesti to southern Ennedi: in fact the highlands of Erdi and Ennedi stand out as great islands in a sea of low-lying Nubian sandstone, with a low pass between them—the Mourdi depression—and another between Erdi and Tibesti followed by routes from Borkou to Kufara and the Mediterranean.

It is important that the arrangement of geology and topography

should be understood, for much of the rain that falls on the highlands runs off into the surrounding sandstone plains, where it is absorbed to become available as an artesian supply at great distances from its point of entry, and in regions devoid of surface water.

The next event in the geology of northern French Equatorial Africa was the return of the sea to the interior of the continent in Cretaceous times. It encroached probably along the present valley of the Benue river and from the west (possibly also north-west). How far east it covered the continental deposits is not accurately known because the subsequent sinking of the Chad basin has submerged that area under recent deposits. The marine clays and limy beds formed by this encroachment are well exposed immediately west of the boundary between French West and Equatorial Africa, north and south through Bilma as well as along the Benue (in Nigeria).

After a pause and some erosion the sea, returning once again, covered much the same areas during the Tertiary (Eocene) Age but, within French Equatorial Africa, they have, so far, been mapped only along the Benue valley and on the Atlantic coast near Douala and Loango.

The geographical framework was now completed. In Tertiary times (perhaps later Tertiary to Quaternary) large-scale adjustments took place, accompanied by widespread volcanic activity. The magnitude and extent of these changes are not yet fully known, but it will suffice here to refer to the broad elevation of the Tibesti massif, with violent volcanic action, the outpouring of vast quantities of lava, and building of volcanic material to over 10,000 feet above sea-level with deep craters. These volcanic outbursts were widespread throughout much of Africa, and they outclass the products of outbreaks of rather greater geological age.

It is probable that the enclosing of the Chad basin is a Tertiary or Recent creation. The drainage of the interior probably escaped to the Atlantic and comparatively small changes would cause it to do so again. In the southern half of the depression the extensive run-off is either carried to the lake, spread out in swamps, evaporated, or carried underground to provide sources of water. The northern half has fallen victim to aridity: there is abundant evidence of former lake-levels and river systems coming from the distant hills, but now the country is dead, desolate, and burdened with wind-blown sand. Very numerous salt-lakes and salt-pans, water-holes and marshes between Tibesti, Ennedi, Borkou, and Chad lake itself testify to the presence to-day of subsurface water.

B. GENERAL PHYSICAL DESCRIPTION

INTRODUCTION

(See FIG. 7)

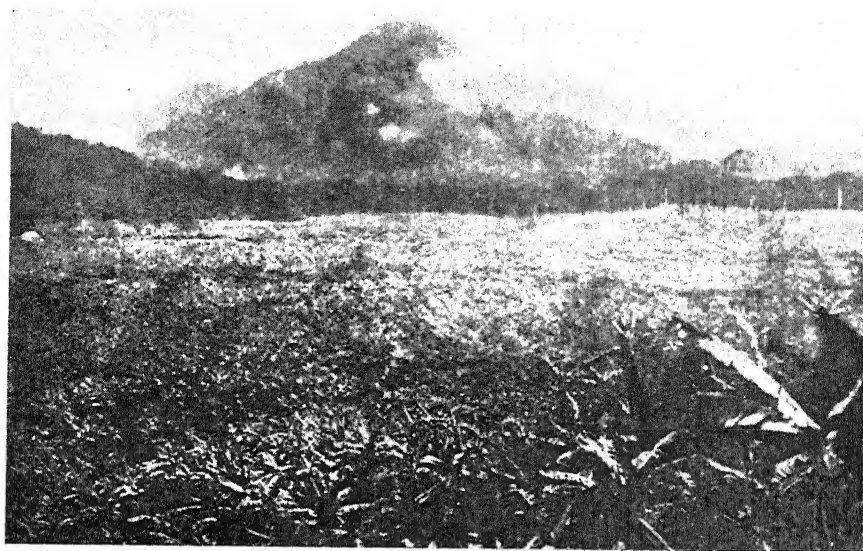
BROADLY speaking, the relief of French Equatorial Africa consists of four lowland regions and two groups of highlands, each shaped like a question-mark, separating them. Between the coastal lowlands and the Congo depression a line of high ground runs north from Moyen Congo to the Cameroons, turns east across Ubangi-Shari, and then curves north, round the Chad lowlands, to the Tibesti mountains. The remnants of a huge volcanic ridge running from the Mandara mountains south-westwards through the Cameroon mountains to São Thomé form the main part of the second, smaller, question-mark.

The whole territory is part of the old African plateau, lower than east and south Africa, but still standing high. The land over 1,500 feet above sea-level is 60 per cent. of the whole territory, whilst an additional 15 per cent. is over 1,000 feet. Even the Congo is over 1,000 feet until, below Stanley Pool, it breaks through the highlands to drain, over rapids, to the sea. Only in the Chad lowlands and along the coast is the altitude less.

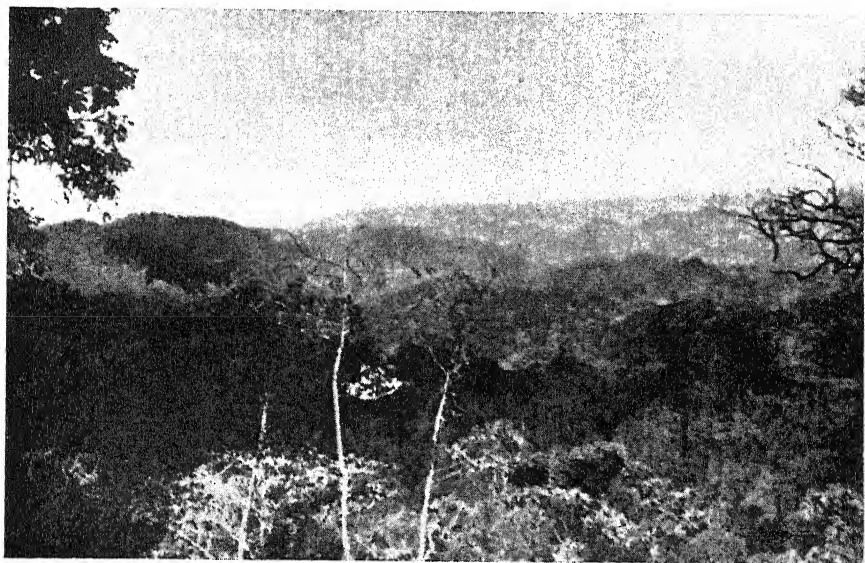
So much for the broad outline. In the following pages the sections into which the country has been divided follow in the main the natural regions, but no exact boundaries exist between one region and the next.

The coastal lowlands are nowhere wide and everywhere there is a sharp rise to the higher ground inland. Between the British Cameroons and Spanish Guinea these lowlands have been built by such rivers as the Moungo, Sanaga, and Nyong, as they flow from the plateau of southern Cameroons. This part of the territory is mainly drained to the sea, and is more broken in the north where it rises to the Cameroon mountains and Ngaoundéré plateau: southwards it flattens out and in the south-east its rivers are tributaries of the river Congo.

To the south of Spanish Guinea, the French territory of Gabon has been considered as one region with the south-west of Moyen Congo, because both are drained directly to the sea by the Ogowé (Ogooué), Niari-Kouilou and other smaller rivers, and because the surface here is very diversified owing to their energetic erosion under the heavy rains of equatorial conditions. In strong contrast are the



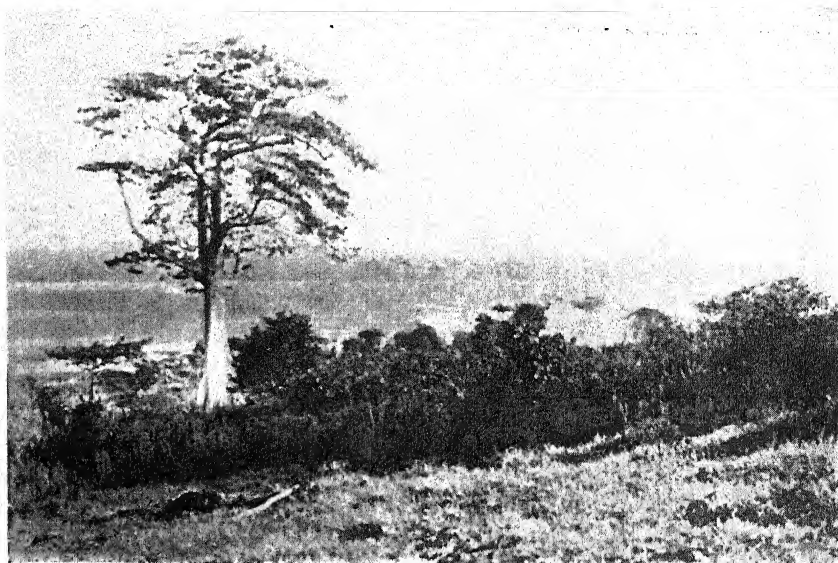
2. *Lowlands of the South-West Cameroons*



3. *Mayombe Plateau, Moyen Congo*



4. *Floods near Ouesso, Moyen Congo*



5. *Valley of the Upper Nyong, Southern Cameroons*

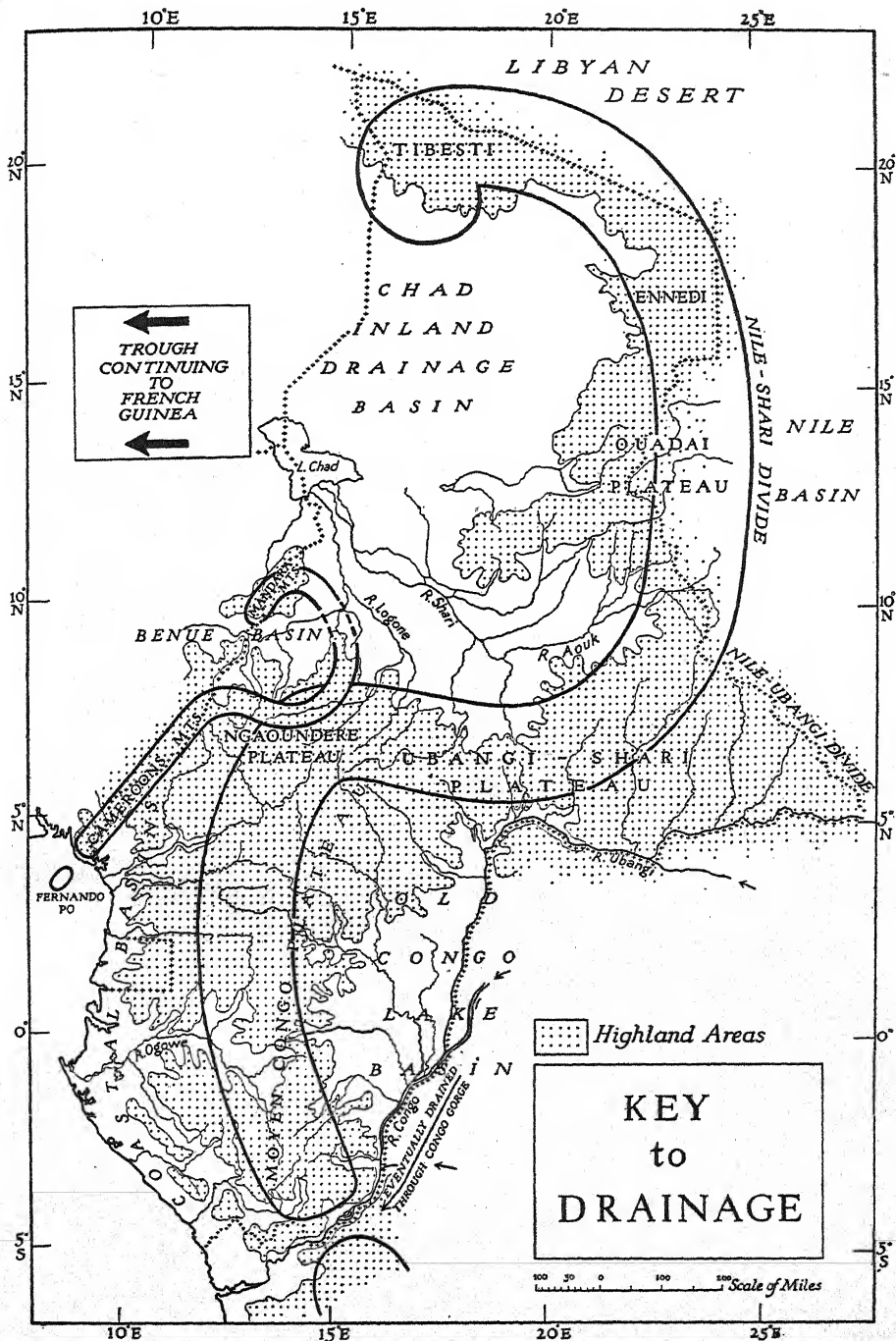


FIG. 7

low divides and swampy flat valleys of the rest of Moyen Congo descending south-east and east to the Congo.

Approximately along latitude 7° N. a major divide separates the rivers flowing south from those flowing north. In the Cameroons this divide is formed by the Ngaoundéré plateau, but farther east, lower and wider, it forms the Ubangi-Shari plateau.

To the north of this divide the majority of the country constitutes a vast inland drainage basin centred in Lake Chad, but below the steep northern escarpment of the Ngaoundéré plateau, a large part of northern Cameroons is drained west into Nigeria by the river Benue. The rest of the north of this mandate is, however, part of the Logone valley. This river and the Shari are the main feeders of Lake Chad and their many tributaries drain the northern slopes of the Ubangi-Shari plateau across a huge lowland known as the Shari basin, extraordinarily flat, and flooded each year after the rains.

From the high ground along the eastern border a spur—the Ouadai plateau—projects into this lowland along latitude 12° N. Its southern slopes are drained by the upper tributaries of the Shari, and its northern by the Ba Tha, main feeder of another inland drainage basin in the south of Mortcha.

Immediately north of Lake Chad is a dune country called Kanem, which leads north to Bodélé (Le Pays Bas du Tchad). This is the name given to a group of depressions in the centre of the desert region of French Equatorial Africa. These depressions are lower than Lake Chad and connected to it by a huge valley known as Soro or the Bahr el Ghazal, which must not be confused with the better known Bahr el Ghazal in the Anglo-Egyptian Sudan.

From these depressions the ground rises again, north through Borkou to Tibesti, and east to the plateaux of Erdi and Ennedi. Tibesti is an imposing massif in the extreme north of the territory and sprawling over into Libya: Erdi and Ennedi are lower, but equally wild, highlands in the north-east of country, linked southwards by a ridge to the Ouadai plateau.

In reading the description of these regions, two or three points should be kept constantly in mind, for their reiteration would be merely tedious.

First, that the regions into which the country has been divided are themselves of considerable size; that, for instance, 'a spur extending northwards from the plateau' may be an area larger than the south-western peninsula of England, itself a spur of very varied country.

Second, that much of the territory has never been surveyed with

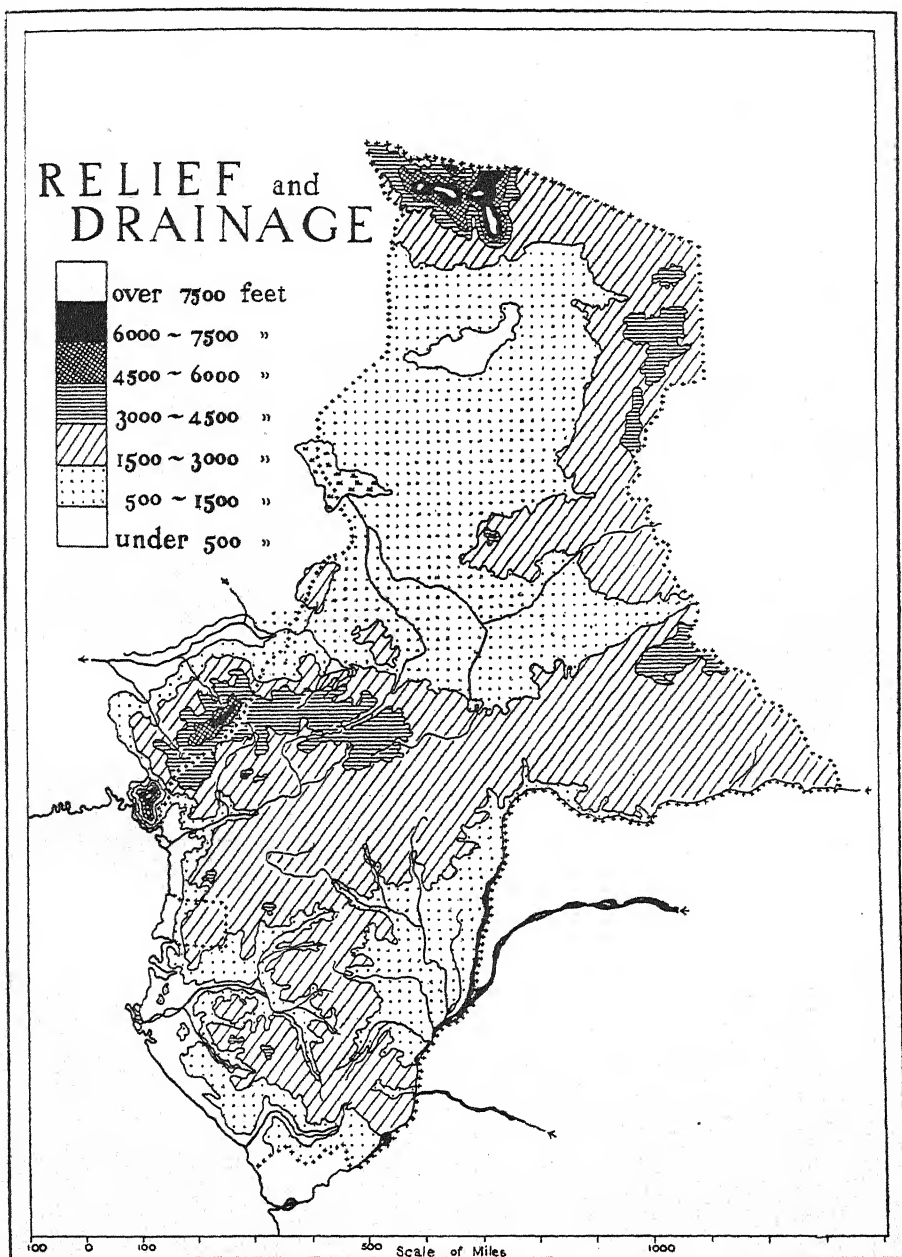


FIG. 8

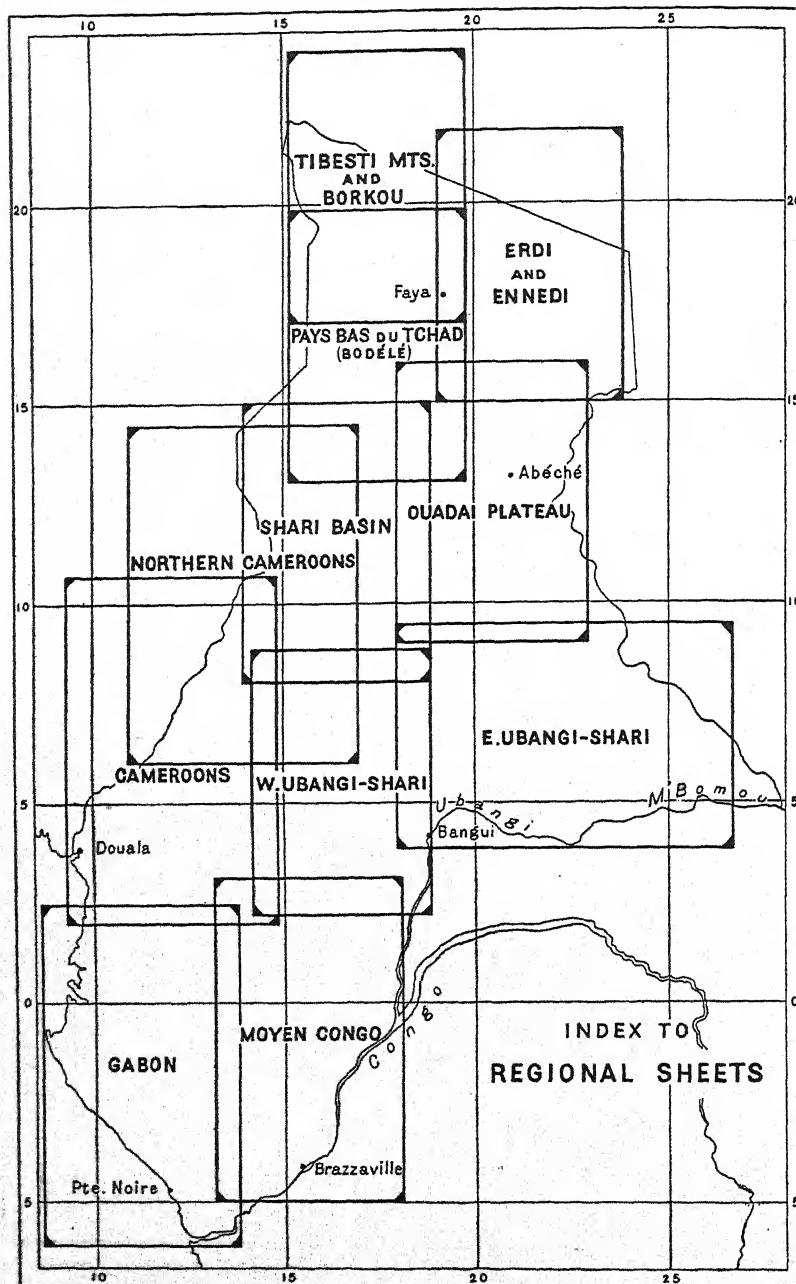


FIG. 9

any accuracy, while many parts have never even been explored. Though the generalizations that become inevitable under such conditions will possibly be inaccurate in detail, large areas are extraordinarily homogeneous. In few parts of the world are there such large geological units, which have for so long remained undisturbed. Large areas have the same climate and vegetation. Both of these exert a considerable influence on the topography, and in Africa both have been long and continuously at work. To this extent, then, the description of one part of the plateau may be applied to another part which has the same climatic conditions.

Third, that the two climatic seasons of the tropical and semi-desert areas impose great differences upon the surface conditions. After the rains there may be plentiful pasture, an impenetrable grass cover, and swamps; in the dry season the same area will be dried up and barren of grass, but easy to move across.

THE COASTAL LOWLANDS

(See FIGS. 10 and 13)

The coast of French Equatorial Africa is divided into two parts by Cap Lopez.

To the north the coastline is indented: there are two excellent harbours in the estuaries of the Cameroon river and of Gabon, and reasonably sheltered anchorage at several other points, notably in the north of Corisco Bay and immediately north of Cap Lopez. To the south the coastline is regular and natural harbours are completely lacking.

In the extreme north the volcanic cones of the Cameroon Mountain dominate a huge delta region that stretches in a semicircle south to the mouth of the river Nyong. These lowlands have been formed by the rivers Mounjo, Vouri, Sanaga, and Nyong and surround the Cameroon river. Its inlets offer safe anchorage, though much of the bay is shallow. The tidal reaches of the islands and of the creeks are mangrove-covered, and, inland, papyrus and pandanus give way gradually to the forests and plantations stretching up to the mountains behind. Between this estuary and the Nyong there is a maze of streams and rivers, islands and sandbanks which are constantly changing (*see* Plate 2).

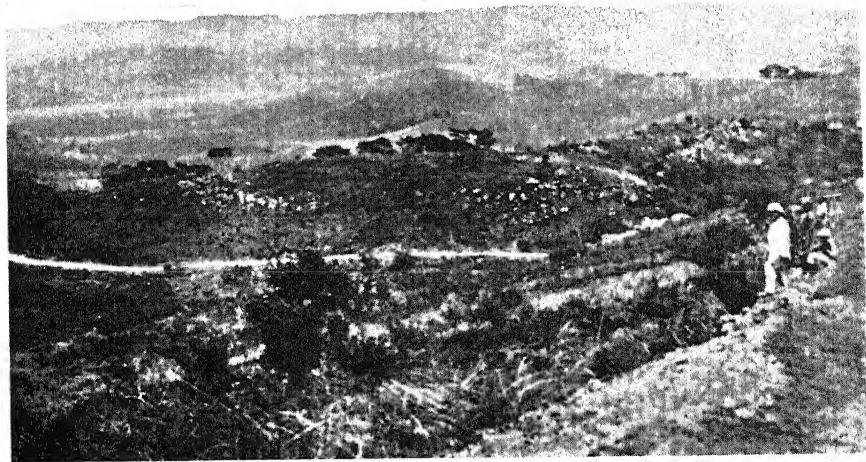
South of the Nyong mouth there is a change in the character both of the coast and of the coastal lowlands. From Kribi to Cap San Juan the coast is low and thickly wooded, with occasional rocky patches



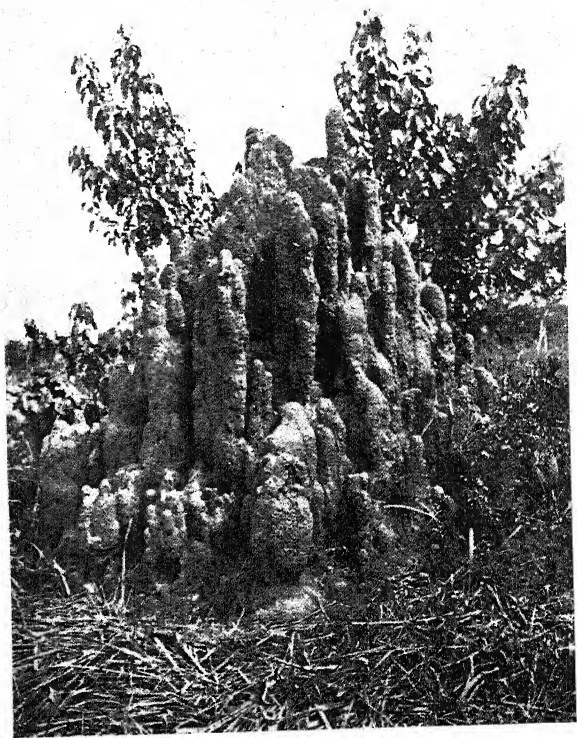
FIG. 10



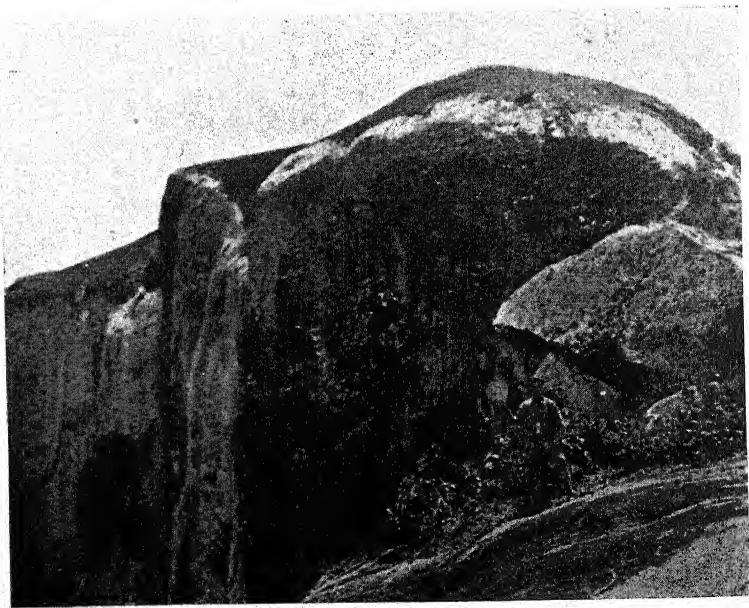
6. *Okoumé waiting for Shipment, Gabon*



7. *Batéké Plateau, Southern Moyen Congo*



8. *Ant-hill (Termites)*



9. *Granite Tors near Ebolova, Southern Cameroons*

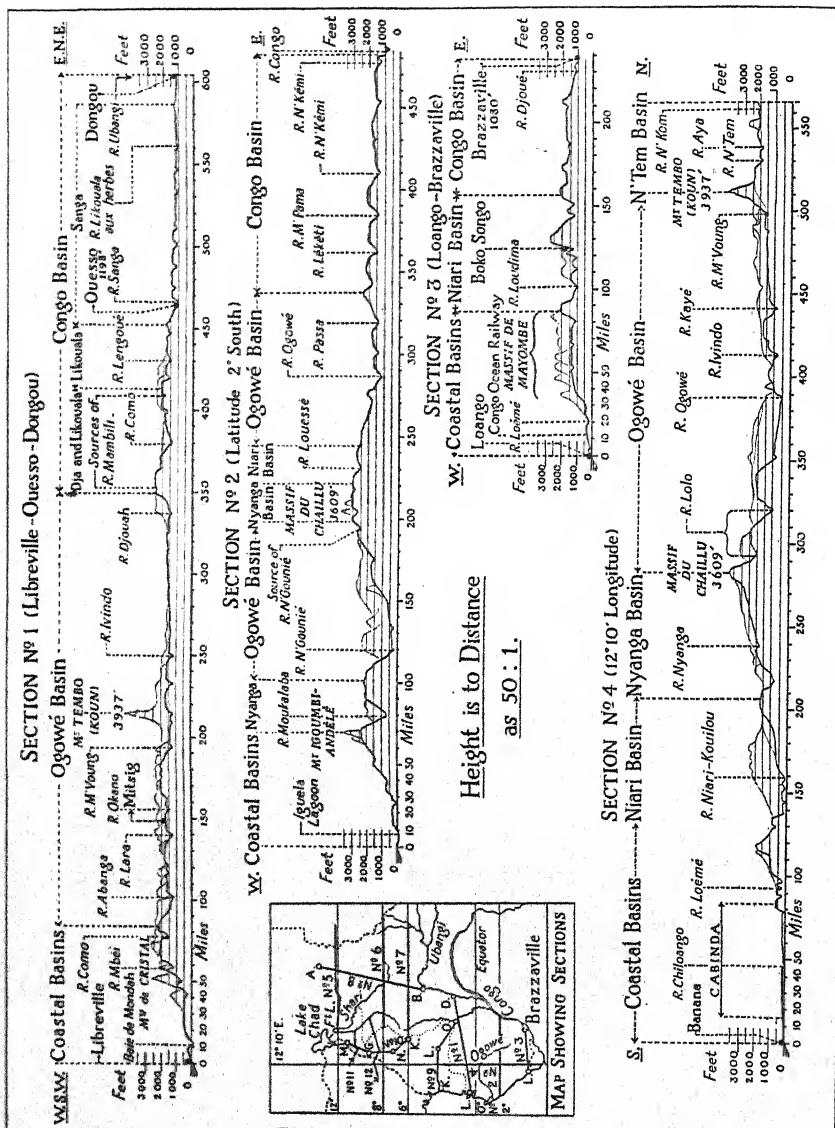
interrupting the long stretches of surf-beaten sand, and, as the coastal plain narrows southwards, outliers of the plateau appear quite close to the coast. Such is Mount Beundo, which rises just inside the mouth of the Nyong and is used as a guide to that estuary. Another example is afforded, between Grand Batanga and Campo, by Les Mamelles, the peaks of a range running for 15 miles parallel to the coast only 6 miles inland.

Between the navigable estuary of the Campo and Corisco bay the coastline becomes more irregular and the coastal ranges, which are in fact the western edge of the plateau, are more continuous and higher. Behind Bata bay, in Spanish Guinea, Las Siete Colinas (the Seven Hills) are conspicuous only 15 miles inland, with their highest point rising 2,786 feet. To mark this change further, the country south of the Rio Benito is a confused mass of highland which has caused the coastal plain practically to disappear, as if it had been pushed into the sea by such heights as Mount Mitre (3,940 ft.) and the ridge which runs south-westwards to Cap San Juan.

From Cap San Juan to Cap Lopez the coastal lowland widens out again and is broken by a series of estuaries—Rio Mouni, Mondah bay, Gabon river, Cap Lopez bay—but the more rugged, wooded coastline of Corisco island and bay, and the cliffs that mark its extremities, are in strong contrast to the more regular dune coast south of the Gabon river. The coastal hills in this stretch are less frequent and not so high, though the general flatness makes them prominent, and the hills north of Libreville and Mount Sangatanga are important features.

Between the head of the Gabon estuary and Pointe Ste Catharine the plateau edge falls back from the coast in a rough semicircle through Ndjolé, which is about 90 miles from the sea. The whole area is monotonously flat and covered with a maze of lagoons and streams: the mouths of the Ogowé river winding their way sluggishly over its delta to the sea. As in the Cameroons delta, mangroves line the banks and give way to papyrus swamps, which in their turn are replaced by the forest. Although the largest of the lagoons, Lakes Azinguo and Onangué, act as natural reservoirs to the flood waters, in the wet seasons (April–May and October–November) the rise on the main stream of the Ogowé will show anything from 13 to 16 feet above low water and large expanses are flooded.

South of Pointe Ste Catharine the coastline has been smoothed by the Benguela current, and the succession of sandy beaches backed by forests or bush-covered dunes is so featureless that notable landmarks



are formed by such low hills as those behind Pointes Komandji, Panga, and Tchibobo, or by the red cliff that marks Pointe Panga. The plateau edge here is only about 25 to 35 miles inland, and the small streams draining from it all have their mouths blocked with the coastal detritus swept north by the current, so that lagoons occur behind the dunes and all the rivers turn north parallel to the shore before entering the sea. This smoothing effect has further been responsible for the lack of shelter along this section of the coast, and the only quiet anchorage is to be found to the north of Pointes Matouti, Indienne, and Noire, each of which protects a small port. Close to the shore the country is flat and swampy, except for occasional low hills such as those already mentioned: fairly rapidly, however, a gradual and regular rise takes place up to the plateau, through rather open bush country, with thicker forests higher up.

THE SOUTHERN PLATEAU

Behind the coastal plain there is an abrupt rise onto the plateau, which falls gradually eastwards to the Congo. This high ground, above 1,500 feet, is widest in the north, where it links up with the Cameroons highlands and the Yadé plateau, and it narrows southwards as the coast and the Congo approach each other.

Southern Cameroons (Fig. 10)

The present boundary between the British and French Cameroons follows in the main the crest of a great volcanic ridge. The southern end of this ridge consists of a series of isolated peaks—the islands of São Thomé, Principé, and Fernando Po, and the Cameroon Mountain. North of latitude 5° N. a large mass of highland runs in a semicircle to the Yadé plateau through Tchang, Bamenda, Banyo, Ngaoundéré, with spurs jutting out north-west into Nigeria. Most of this area is over 3,000 feet above sea-level, and, particularly near Bamenda, much over 5,000 feet, with occasional outstanding peaks of more than 7,000 feet.

The southern end of this high land is drained, south of Tchang, by the rivers Moungo and Vouri and their tributaries, while the rest of the area is drained by the Sanaga and its main tributaries the Mbam, Djérem, and Lom (*see Plate 1*).

The ravines of the forest-clad Moungo-Vouri basin are sharply separated from the valley of the Noun by the J-shaped spur running from Tchang through Ndikinimeki to Ndogongui, but the other

tributaries of the Sanaga have less clearly defined basins. The road from Yaoundé to Ngaoundéré divides this area approximately into two. To the west of the road, that is to say in the basin of the Mbam, the slopes are steeper, abrupt escarpments more frequent, valleys deeper, and the country—thanks to the height—more open, except in the actual valleys: to the east the plateau is more typically West African. Though there are higher areas such as the rising ground



FIG. 12. *On the Cameroon Uplands.*

on which Yoko lies, about 4,000 feet high, the area is one of undulating orchard bush country, thickening to forest-land southward, with a multitude of rivers running haphazard between the low hills and occasional rock masses.

The other main river draining Southern Cameroons to the sea is the Nyong, whose upper tributaries rise on the col used by the Yaoundé-Bangui road as it crosses from the Sanaga valley to that of the Doumé. Though the plateau here is hilly, the slope is so ill-defined that much of the country round Abong Mbang is permanent marsh, while the Dja river, a tributary of the Congo, is actually flowing due west for the first 100 miles of its upper course. Though this part of the plateau is in the forest belt, features typical of the African plateau appear—frequent rock masses, falls and rapids in

the rivers as they tumble to the lowlands, and almost indistinguishable divides between the various river systems (Plates 5 and 9).

The extreme south-west of the Cameroons is drained to the sea by the Lokoundjé, Kribi, and other small rivers, and by the northern or right-bank tributaries of the Campo, a river whose upper streams rise, as the N'tem, in the north of Gabon.

The south-east of the Cameroons is part of the Congo basin, being drained by the Doumé, Boumba, and Dja to the Sanga, itself a major affluent of the Congo, and the forested valley sides above the swampy bottoms are typical of the French part of that river basin.

Spanish Guinea, Gabon, and South-west Moyen Congo (Fig. 13)

Most of this area is the basin of the Ogowé, one of the larger rivers of Africa, but the north-west has its own drainage system.

Here the plateau approaches much closer to the coast and is more irregular. Only a few of the rivers attain to any size—the Voleu-Lolo, whose estuary is called the Rio Benito or Eyo; the Temboni, which enters the sea as the Rio Mouni; the Mbei and Como, which feed the Gabon estuary. The others are hardly more than streams falling rapidly from the plateau and winding their way over the narrow coastal plain to the sea.

Extending south from Spanish Guinea, west of the Okano river, is a group of heights known collectively as the Monts de Cristal. The whole of this part of the plateau has been deeply eroded, as the northern tributaries of the Ogowé were forced to keep pace with the more powerful erosion of that river, and this has left isolated steep-sided masses of the plateau standing like mountains between the deep narrow valleys of the rivers.

These isolated massifs continue along the north bank of the Ogowé gorge from Ndjolé to Boué, but at that point the larger and more normal valley of the Ivindo comes in from the north-east. This river with its main affluent, the M'Voung, drains the whole of the rest of northern Gabon. Though their courses have the normal African alternation of wide valley and gorge, navigable stretch and rapid, the upper valleys of the Ivindo, such as the Djouah, are remarkable for their marshiness, which is not common near the source, even under the heavy rains of equatorial conditions.

Above Boué the Ogowé flows from south-east to north-west, and its valley, and those of the Sébé and the other tributaries, are forested and wide, except where, as below Lastoursville, mountains seem to

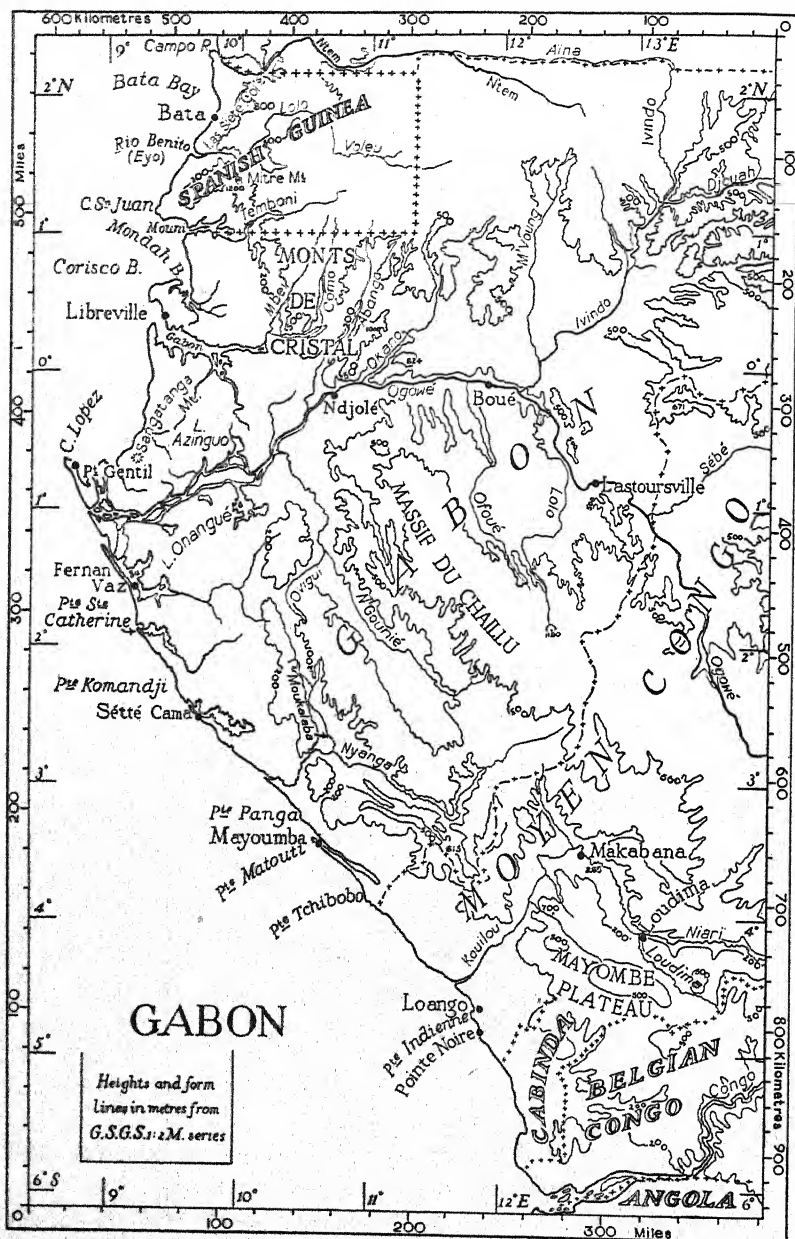


FIG. 13

crowd in upon the river and force it into a gorge, with rapids to interrupt navigation.

South of the loop of this huge river is a complex mass of highland known as the Massif du Chaillu (*see* Sections 2 and 4, Fig. 11). From the central heights, which rise above 3,000 feet, high ground runs out north-west as spurs between the Ofoué and Lolo and west of the Ofoué to form the south side of the Ogowé gorge, and south-eastwards to join up with the Batéké plateau. On the coastal side of this high ground a somewhat unusual relief occurs, for there are two distinct ridges running parallel to the coast, and the rivers run for long stretches in the same direction between these ridges, before they force their way by a gorge from the inner to the outer trough, or to the coast. Though many small rivers show this alinement, the N'Gounié, the Niari from Loudima to Makabana, and the Loudima are the main rivers of the inner trough, while the Upper Ovigui, Moukalaba, and the Middle Nyanga are the main rivers of the outer trough. The two ridges rise to about 1,000 feet, with occasional heights over 1,500 feet, such as the two or three massifs behind Sétte Cama, and the rather more extensive areas inland from Mayoumba and the Mayombe plateau astride the Congo-Ocean railway, where many heights exceed 2,000 feet (*see* Plate 3).

Moyen Congo (Figs. 14 and 16)

Those parts of Moyen Congo not drained seawards by the Ogowé and Niari-Kouilou are all drained east and south-east to the Congo, in the north by the Lobaye, Ibenga, and Molaba, in the centre by the Sanga, the Likoualas, and the Kouyou, in the south by the Alima-M'Pama, the N'Kémi, and the Léfini.

The swampy valleys of the upper Djouah are matched in the north and centre by the valleys of these Congo tributaries, for the forested higher slopes of northern and central Moyen Congo soon fall into flat swampy valleys, and movement, except by water, is almost impossible in the dense, dripping, steamy forests. The area between longitude 16° E. and the Ubangi river is in reality one vast swamp, with the Sanga and the two Likouala rivers winding in great loops sluggishly south to the Congo. The intervening country is a maze of streams joining the three rivers and extending their deltas, at flood seasons, north almost to the equator (*see* Plate 4).

The southern part of this area is the Batéké plateau, whose relief is not very different from that of any other part of the plateau. The highest parts of it are only 1,000 feet above the Congo and most of

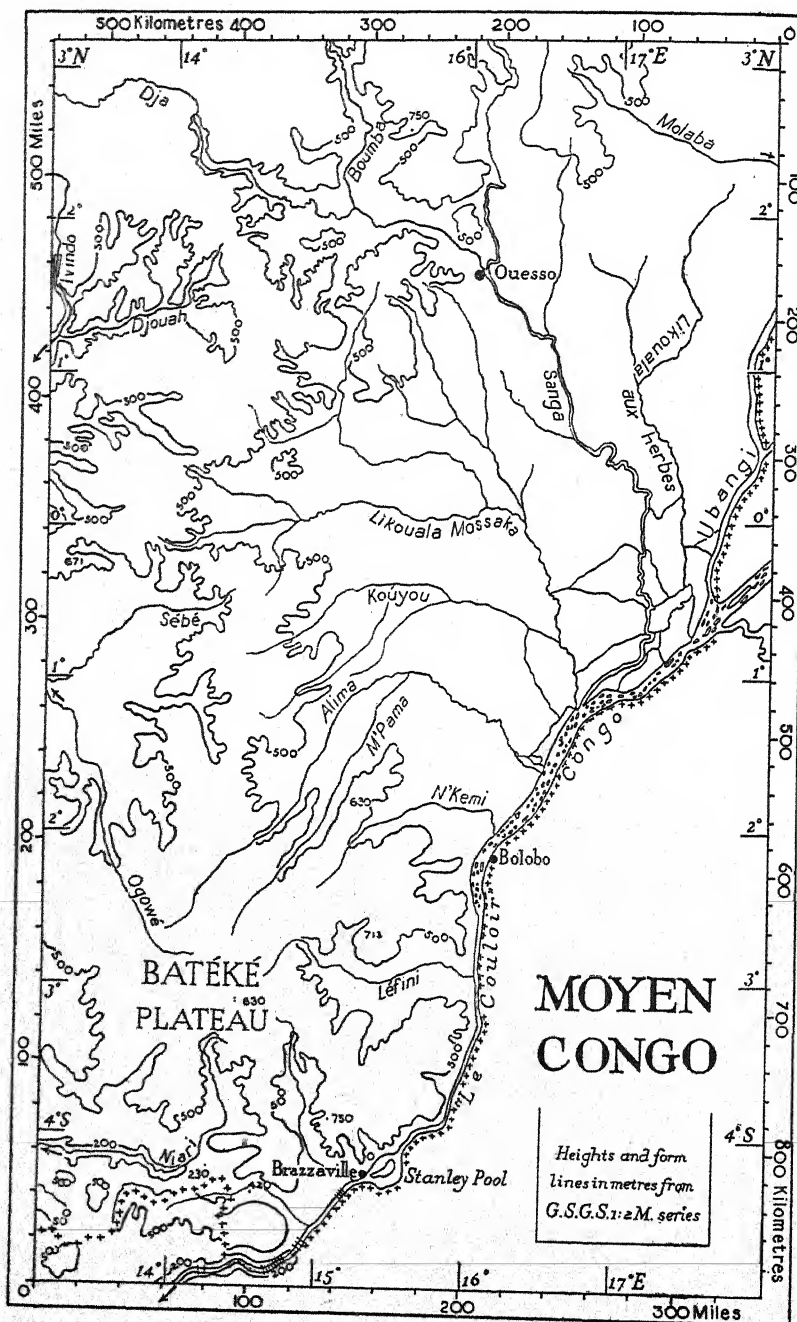


FIG. 14

it slopes gradually to that river. Only in the south-east is there any abrupt drop, for there the Congo has carved itself a trough from Bolobo downwards to the sea, and the plateau drops abruptly into this gorge, called by the French *Le Couloir*, and into Stanley Pool and the long stretch of rapids below it. But in spite of this similarity in respect of relief, this area is markedly different from the surrounding country, for the rather barren sandstone has neither the necessary fertility nor the requisite water-holding powers to support a dense forest growth, and so the plateau is an area of orchard bush

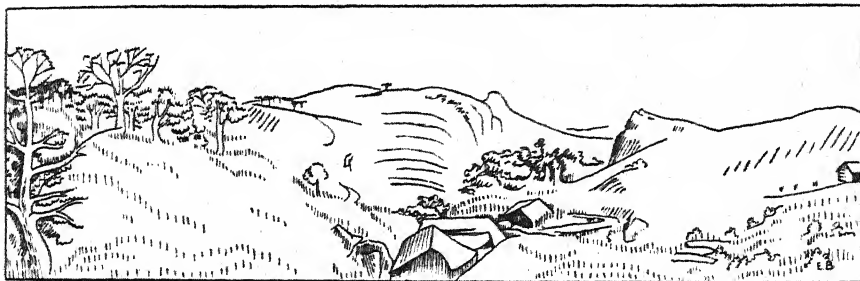


FIG. 15. *The Batéké Plateau—Moyen Congo.*

country, with open sweeping downland, and villages nestling in woods on the valley sides (*see* Plate 7).

THE CENTRAL PLATEAU

Ubangi-Shari (Figs. 16, 17, and 18)

Running across Ubangi-Shari about latitudes 6° and 7° N. is a belt of high ground, shaped rather like a dumb-bell, an eastward extension of the Ngaoundéré plateau, separating the Shari basin from that of the Congo-Ubangi.

Its western end is formed by the Yadé plateau in the extreme west of Ubangi-Shari (Fig. 19). This is an area above the 3,000 foot contour with its centre in Mount Gaou (4,600 ft.). Although the plateau is cut off from the highlands round Ngaoundéré by the narrow Mbéré valley, its open grasslands and valley trees give it the same characteristics. It is, however, a more important source of rivers, for from it radiate northwards the Logone, north-east and east the Bahr Sara, south-east and south the Lobaye and Sanga, and south-west the Lom, main tributary of the Upper Sanaga. As in the Ngaoundéré plateau, this area is much more open, due to the height, and there is little to tell the observer that he is in the

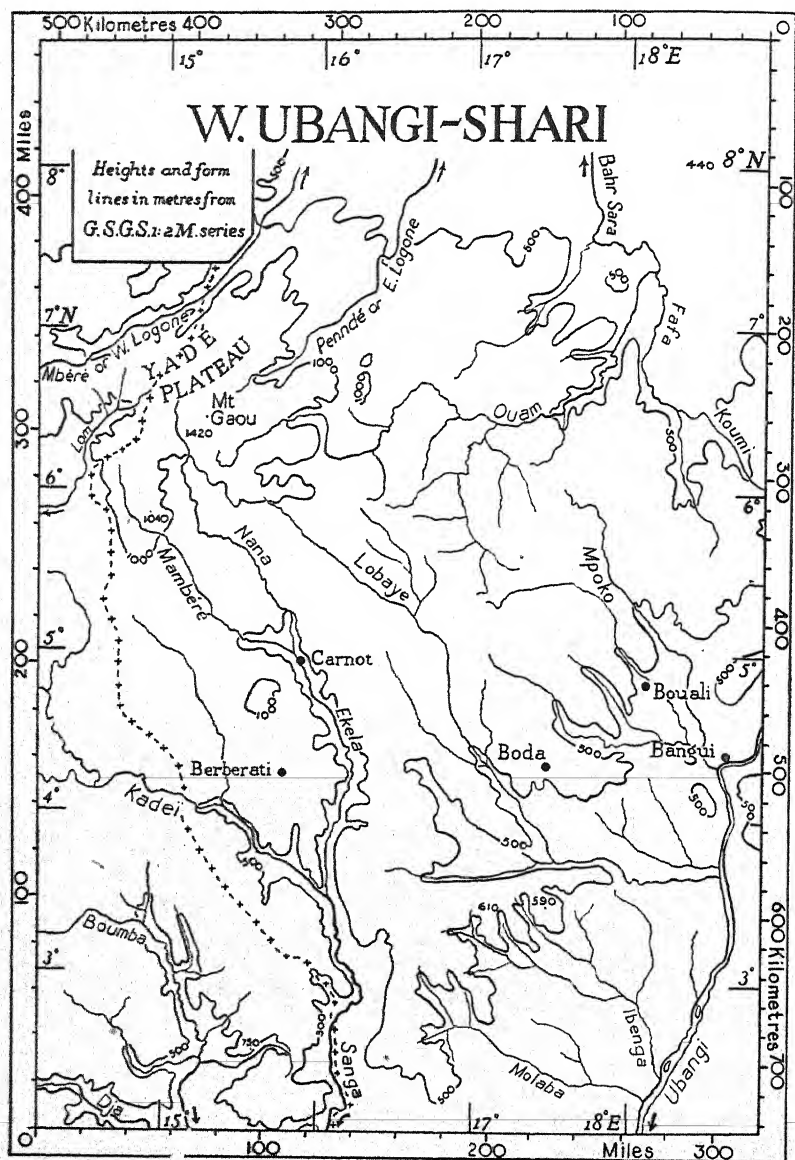


FIG. 16

tropics, and not in temperate regions: grass 2-3 feet high covers the rolling hills, with only an occasional tree, or a break where a group of native huts is surrounded by crops. (See Plate 10.)

From the plateau a flat spur runs out east to link up with the triangular mass of highland in eastern Ubangi-Shari. This spur is the centre haft of the dumb-bell and constitutes the Ubangi-Shari divide. The existence of this col (see Fig. 17) has been of great importance to north-south trade in French Equatorial Africa, for it not only brings navigable tributaries of the two systems close—the Gribingui and Kouma, the Koumi and Tomi—and so makes water communication easy, but also offers easy road routes between Archambault and Bangui. From Crampel to Possel is about 140 miles, and the highest point on the route (at Dekoua) is only 600 feet higher than Possel.

In addition to this col several important spurs extend from the main mass of the Yadé plateau—north-east and south-east, like the spokes of a wheel, between the rivers mentioned above. The one that runs south-east on the east of the Mpoko causes the rapids on the Ubangi between the towns of Mokoange and Bangui as it turns the river southwards. Those stretching south enter the forest belt, and so, except for their higher parts, are covered with open forest, which thickens as one proceeds south. The lower valleys are marshy and, like those of Moyen Congo, flooded after the rains.

East of the Possel-Crampel road the high ground widens out into a rough triangle, which lies between a line joining Crampel and Birao (Fig. 25), the Eastern border, and the M'Bomou-Ubangi river. Its highest point is in the Dar Challa. Although there is a fairly rapid fall northwards, the gradient west and south is very slight. When it is remembered that from Mobaye to Ouadda is 275 miles (the same distance as London-Carlisle) and that there is a rise of only 1,600 feet, or 1 in 900, the extreme flatness of the country will be appreciated.

The high ground of Dar Challa consists of a group of granite massifs rising out of a sandstone base; such are the Bongo mountains (over 4,500 ft.) in the west, the less impressive massifs of Ouanda Djalé (3,400 ft.), the heights along the border, which rise to 4,000 feet, and the Djebel Mela (4,200 ft.) in the south. (Section 6, Fig. 18.)

This plateau is in the savanna zone—a country of rank grass, often growing 5-12 feet high into the lower branches of the occasional clumps of trees. Though the grasses are usually burnt at the

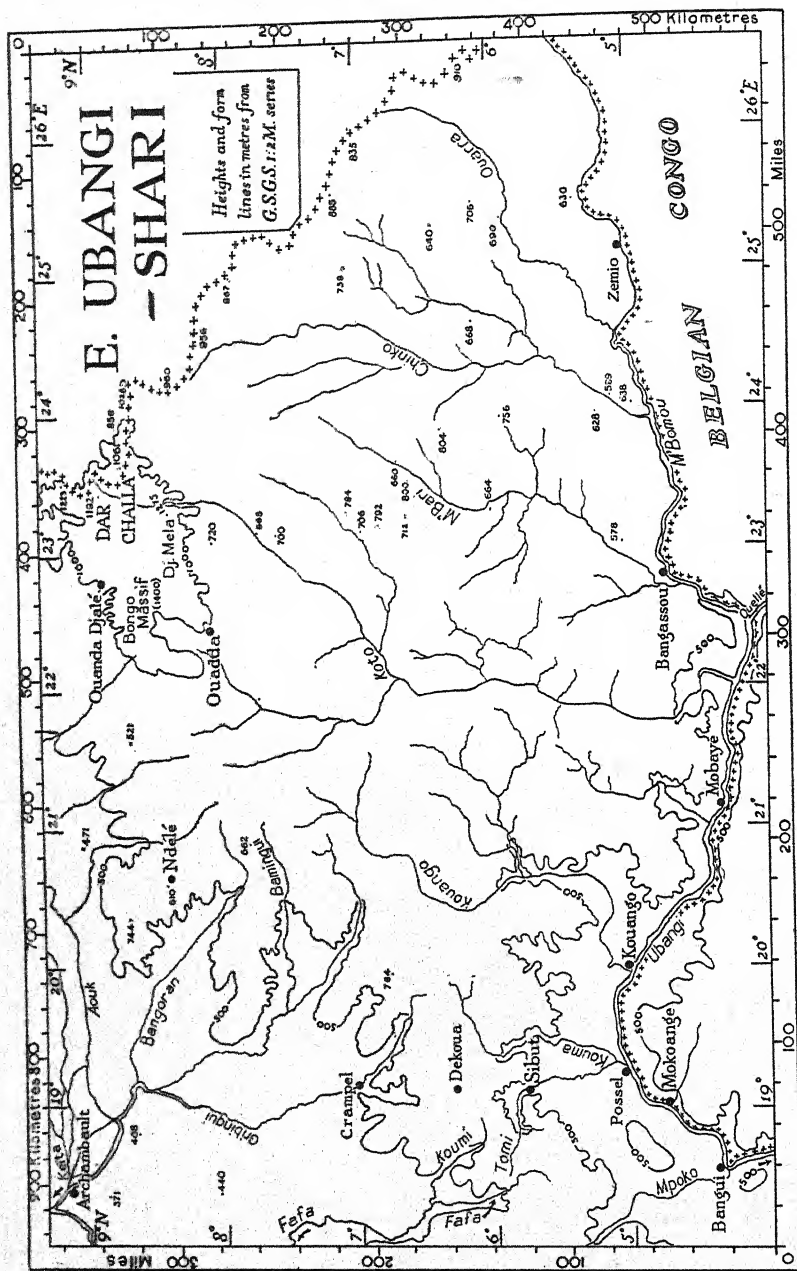


FIG. 17

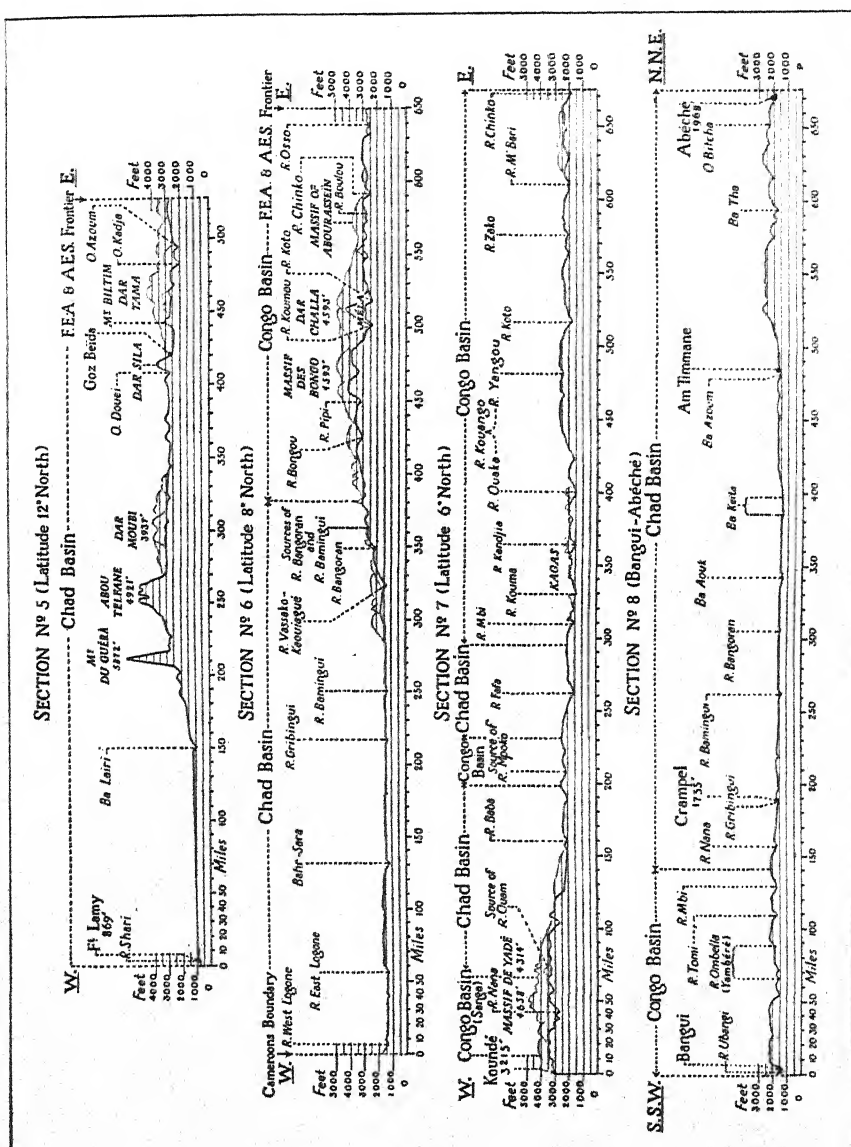


FIG. 18.

end of the dry season and large areas then present a blackened surface with the trees standing gaunt and scorched, the new growth quickly shoots up with the rains, and progress away from the native tracks and few roads again becomes almost impossible. The whole area is strewn with rocky eminences, isolated or in groups, called 'Kaga' or 'Mbia' locally. These Kaga (*see* Plate 11) are usually granite tors rising abruptly 100-300 feet above the undulating plain round them, either sheer or with a jumble of huge boulders round their base. From their summits there opens out a view of miles of rolling grassland, dotted with isolated bushes or clumps of trees, and the river-courses marked by a line of darker 'gallery' forest. The rivers are indeed almost always sunk between walls of such dense forest, which shuts out the view on either side and impedes navigation with its overhanging branches and submerged snags. Away from the rivers such dense tree growth only occurs where a hollow on some impervious rock holds water near the surface. Another feature of importance are the ant-hills, which are frequent in many localities, rising 6-10 feet on bases 12-15 feet in diameter. (*See* Plate 8.)

Northern Cameroons (Figs. 19 and 20)

From the open grasslands of the Ngaoundéré plateau there is an abrupt escarpment to the north (*see* Section 10, Fig. 20), though an important spur extends northwards between the Faro and Benue valleys, to end about 5,000 feet high in the Bantadji mountains. This steep northern side is in strong contrast to the more gradual slopes leading up to the plateau on the south, and has proved a serious drawback to the development of Northern Cameroons, whose natural outlet is westwards down the Benue into Nigeria.

The plains north of the escarpment are drained westwards by the upper part of this river. The main stream rises just north of Ngaoundéré and flows northward into a wide fertile valley, which is flooded once each year. It then turns west, and, below Garoua, as the valley narrows between the border ridge, the river Faro comes in from the south. This river and its main tributary, the river Deo, rise near Tinguéré. The upper course of both is narrow and shut in beneath highland on each side, and the Deo so continues. The valley of the Faro, on the other hand, widens out to the north of latitude 8° N.

After the junction of the two rivers the valley narrows again, as the combined river flows on close under the precipitous eastern slopes of the Alantika mountains. (*See* Section 12, Fig. 20.)

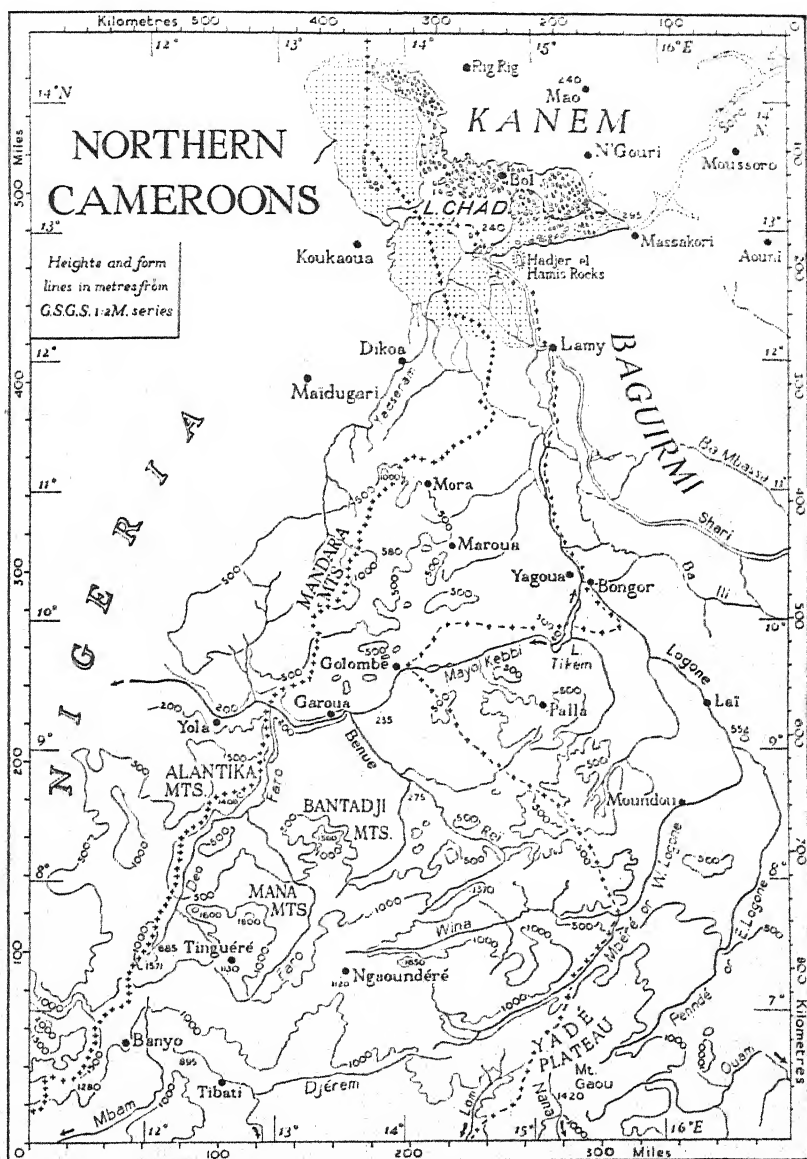


FIG. 19

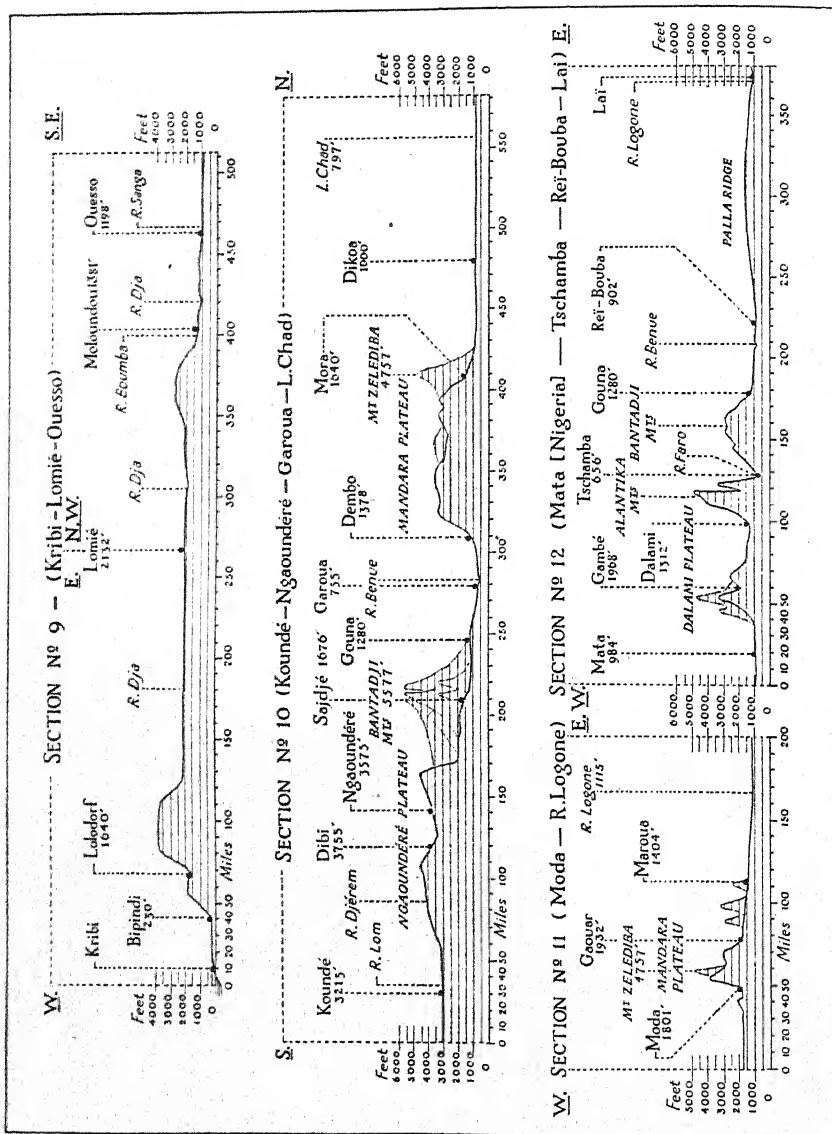


FIG. 20

To the east of longitude 14° E., another but much lower spur runs north from the plateau and gives rise to the Wina and Reï rivers and several other tributaries of the Benue and Logone. In geologically recent times this spur joined the Mandara mountains to enclose the upper Benue basin, but the Mayo Kebbi has so lowered this ridge on latitude 10° N. that to-day there is water communication between Garoua and Yagoua via Lake Tikem, and in the flood season the waters of the area drain both south-west to the Benue and north-east to the Logone.

In the northern half of the area under discussion the Mandara mountains are a continuation of the volcanic border ridge, and heights of 4,500 feet are comparable to those in the Alantika mountains, with which they were once probably continuous. To the south-east of the Mandara mountains a major mass of highland extends almost to Golombe, while another, lower and with more isolated peaks, descends in wider steps eastwards, to end in a surprising double-pointed knoll overlooking Lake Tikem (Plate 10).

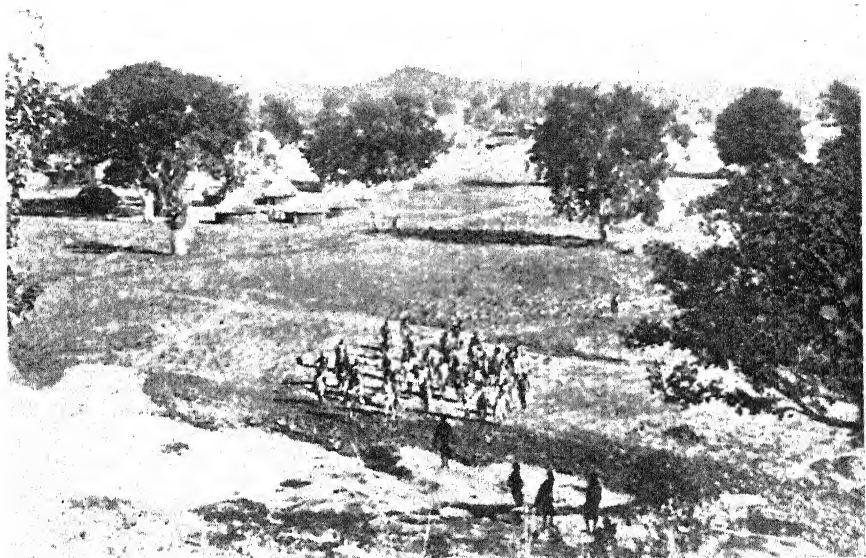
From this triangle of high ground the country falls almost imperceptibly north and east to Lake Chad across the plains drained by the Logone and (in Nigeria) Yadseram systems. In appearance the country is similar to that of Baguirmi—flat featureless plains of black soil; trees lining the watercourses; villages on slight rises to avoid the annual floods; the green of the grass that springs up almost miraculously after the rains contrasting with the sere and yellow aridity of the dry season; the similar alternation of full and empty rivers, of widespread swamps and shrinking pools.

The Shari Basin and Lake Chad (Figs. 19, 21, and 25)

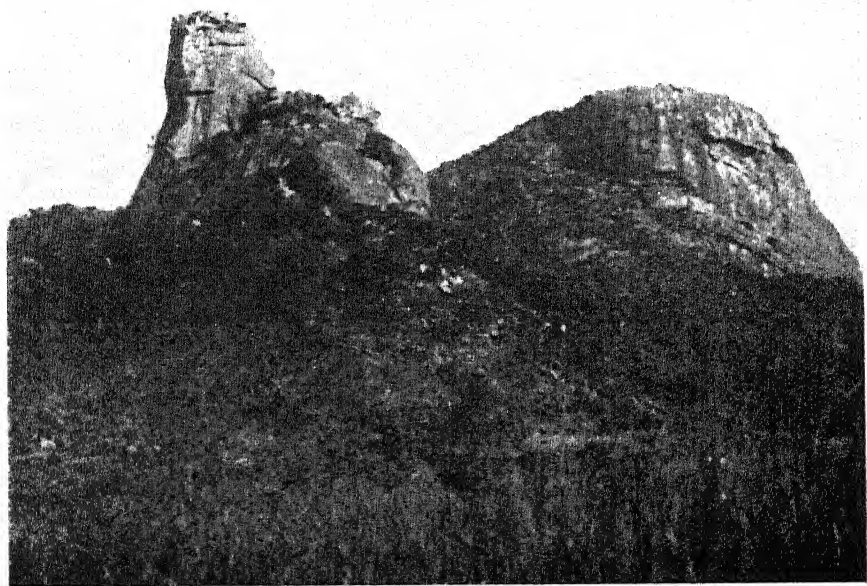
To the north of the Ubangi-Shari plateau lies a huge semicircle of lowland drained by the Shari and Logone river systems. A spur running from the Yadé plateau north-east through the Koutou Kouma and Niellim hills once joined the Melfi hills to form a sill which held back a huge lake stretching eastwards to long. 23° E. Though there are few indications of this sill left on the surface to-day, the line forms a convenient division between the upper and lower parts of the basin.

The country south of Archambault is drained northwards by the Bahr Sara and Gribingui systems, and, with its rolling grassy plains, granite tors, and the inevitable rapids on the river, is not unlike eastern Ubangi-Shari.

Archambault is an important point on the water route and one of



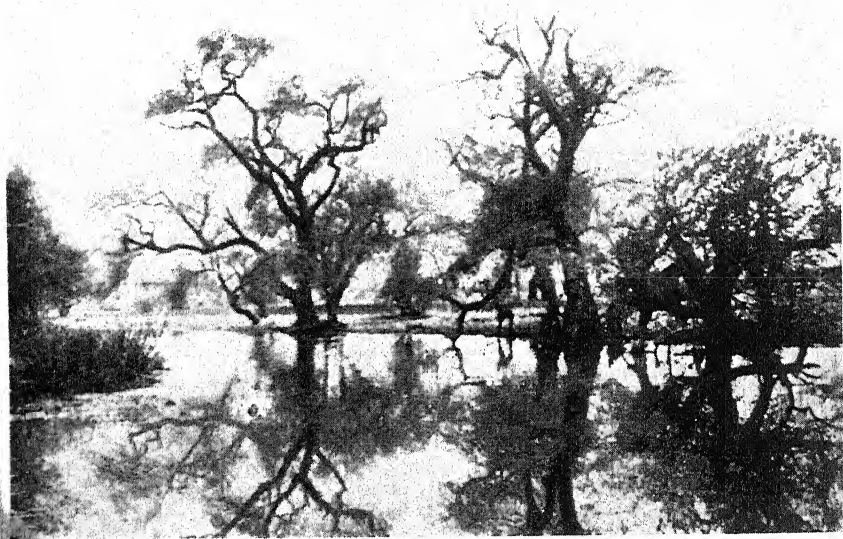
10. *Near Maroua, Northern Cameroons*



11. *Kaga near Ouanda Djale, Eastern Ubangi-Shari*



12. *Baguirmi*



13. *Floods on the Shari River*

the road routes from the Congo to Chad, and lies opposite the delta of the Aouk and Keïta. With the Selamat these rivers drain the old lake bed referred to above, now a huge reed and grass-covered basin, extremely flat and, after the rains, a vast swamp. Along the greatest stretch, from Birao to Archambault, the gradient is only 1 in 4,000 or a fall of barely 1 foot in three-quarters of a mile. As the soil is clay over most of the area, it becomes quite impassable in the wet season, and the absence of any roads is, therefore, natural (*see* Fig. 25).

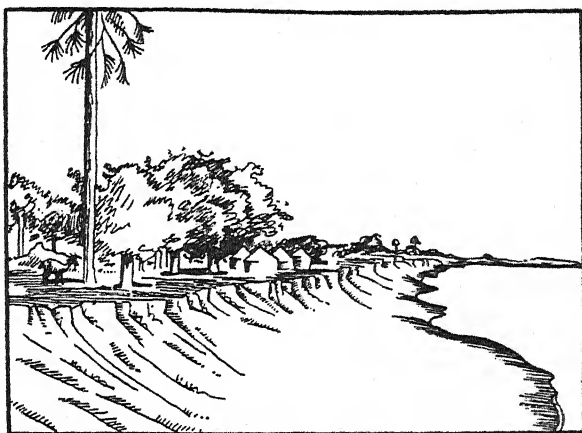


FIG. 22. *Low water on the river Logone*

North-west from Archambault the Shari winds to Lake Chad past the Niellim and Melfi hills, out on to the vast plains of Baguirmi (*see* Plate 12)—so flat that after the rains there are widespread floods here too. The area between the Shari and Logone is often called 'The Mesopotamia of Chad' and is seamed with a maze of channels joining the two rivers and the Ba Ili which flows between them. To the north of the Shari there is again a network of streams linking the Shari, Ba Mbassa, and Ba Lairi, and serving to distribute the flood-water. The Ba Mbassa is a permanent river which leaves the Shari above Miltou and joins it again 60 miles upstream from Lamy: the Ba Lairi is only seasonal and disappears in the swampy basins west of Lake Fitri.

Most of Baguirmi has only an open cover of seasonal grass and thorn bushes, but trees line the watercourses and there are usually a few round most villages. These latter are almost invariably sited on a knoll or other rising ground, to avoid the annual floods. Except

for these slight mounds the country is so flat and featureless that such heights as the isolated rocks of Hadjer el Hamis (*see* Fig. 23), on the east of the Shari delta, and the group of conical hills east of Miltou become notable landmarks. Much of the land near the rivers is composed of fertile black alluvium, which becomes a quagmire in the wet season and a maze of crevices as the country dries out, leaving only an occasional grass-fringed pool (*see* Plate 13).

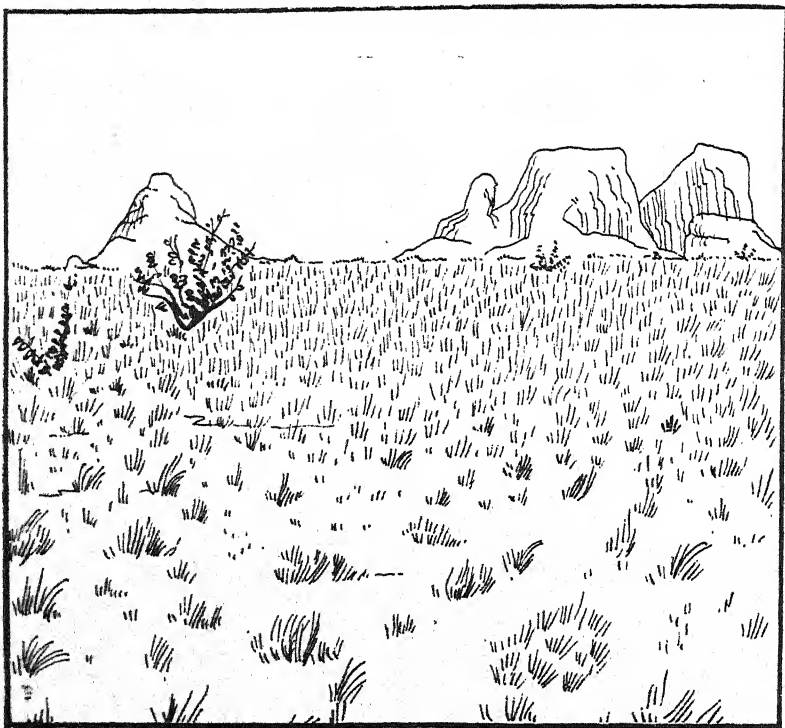


FIG. 23. *The rocks of Hadjer el Hamis*

The Shari and Logone rivers empty themselves into a huge depression, about 800 feet above sea-level and approximately the size of Wales. Most maps show Lake Chad at high water and thereby give an exaggerated idea of its importance. It is true that there is standing water of some depth in parts of the depression all the year round, but the area so covered varies from season to season and also from year to year, according to the amount of rain received farther south in the basins of the rivers which enter the lake.

A line joining Koukaoua to Mao divides the lake depression into

its two halves. In both of these there is a greater area submerged in December, but owing to the extreme flatness of the surrounding shores, the increase in depth is far less than the increase in area: a rise of a foot will give an increase in area of several hundred square miles.

As the northern half of the depression is fed by only one major river, the Komadougou, from Nigeria, it is markedly different from the south-eastern half, which is fed by three large river systems, the Yadseram, Logone, and Shari. Most of this northern part is covered by 2 or 3 feet of water after the rains, but in July all except the east of it dries right out, and the low islands now rise from sand and mud-flats. The shores are flat and bare with only an open cover of grass, thorn thickets, and scattered mimosa trees: on the islands occasional maria bushes and mimosa trees rise from a dense growth of reeds and swamp grasses.

An important and disconcerting feature of this part of the lake is caused by the shallowness; whole areas covered with water at one time of day may be turned by the wind into dry land a few hours later, or the reverse. Though this may occur anywhere and at any time, the north-east wind is the strongest and most prevalent, and there is most frequently a tendency for the water to be blown to the south-west during the morning and to flow back again to cover the north-east in the evening.



FIG. 24. *Island in Lake Chad*

The south-eastern half has a much larger proportion of its area permanently covered with water, and even the areas covered thick

with reeds, as in the south-west, generally have enough water to float a boat. In the dry season a large part of the south-west dries out, together with a large area in the extreme east, leaving open water opposite the mouth of the Shari, along the north shore islands, and westwards in the direction of Koukaoua. In these parts there is a permanent depth of from 5 to 12 feet of water, and north of the Shari mouth there is a large enough stretch of water to give the appearance of an inland sea, and to become dangerously choppy in rough weather. The islands here are larger and higher, and many are inhabited, while the shores are much more clearly defined except in the east where the Soro or Bahr el Ghazal joins the lake. Along the north shore many villages, which can be reached from the mainland during the dry season, are cut off by marshes after the rains: at the same season the lake extends a considerable way along the Soro, and the lower islands are submerged.

The water of the lake is, on the whole, sweet, though more so in the south-east, and the area is free from fever, but the reeds harbour swarms of mosquitoes which make life very burdensome by day, and impossible by night without proper netting.

Ouadaï, and the Ba Tha (Figs. 21 and 25)

To the north of the Selamat-Aouk basin, a spur of high ground above the 1,500 foot contour runs out west from the border between latitudes $12\frac{1}{2}^{\circ}$ and $10\frac{1}{2}^{\circ}$ N. Only the north-east of this spur is properly Ouadaï, but it is a convenient unit to deal with as a whole.

The south side of the area is drained by the tributaries of the Selamat and Ba Lairi, south and west to the Shari and Baguirmi. The north side and the west of the Dar Zagaoua and the Dar Tama, which link up with the Ennedi plateau, are drained away westwards by the Ba Tha to Lake Fitri, and by many rivers which fade away into the sands of Mortcha.

The grey huddled cluster of low houses that is Abéché lies in a grass-covered plain, with clumps of thorn bushes dotted here and there. To the east a broken granite country, undulating and intersected by wooded valleys, runs up to the highlands of Dar Zagaoua and Dar Tama. Here there are mountains rising to over 4,000 feet, while heights of 3,000 feet and over are frequent along the border.

Similar masses of high ground occur 200 miles south-east of Abéché at Mongo, where the Abou Telfane rises—an important massif running north to south, some 30 miles long by 20 wide, with

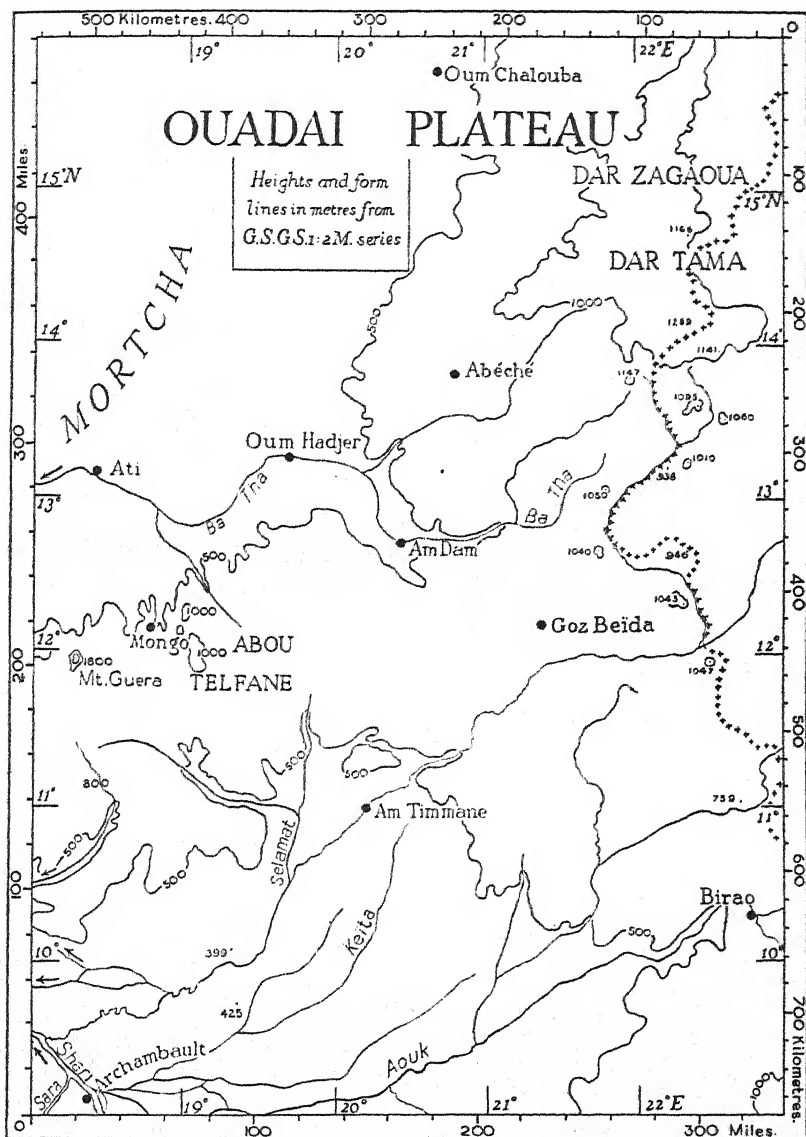


FIG. 25

points nearly 5,000 feet high. And again farther west, the mountains of Guera rise abruptly from the general plateau to nearly 5,900 feet above sea-level.

The whole of the rest of the area is an undulating plateau of indeterminate slopes and drainage, grass-covered, with woods in the lower valleys, and scattered granite tors jutting abruptly out of the ground in every conceivable shape and size.

South of Mortcha, and between the Ouadai spur and Lake Chad, lies a flat monotonous country which receives the run-off of the Abou Telfane highlands, and after the rains becomes a vast impassable swamp. The Ba Tha ends in an inland drainage basin, of which Lake Fitri is the centre. Like Lake Chad, this lake has a very considerable seasonal variation. Though there are occasional granite masses rising out of the plain, as those near Aouni, most of the area between the two lakes is a flat or slightly undulating plain, the southern part of which is flooded after the rains, that is to say, in October and November.

French writers quote four distinct types of region here, whose local names are Naga, Tine, Goz, and Hazhaz. The Naga is formed of clay and is flat, hard, and covered in places with some inches of sand. Grass is rare, but mimosa abundant, and huge ant-hills are frequent. Though movement is easy in the dry season, temporary swamps called 'rahout' ('rahat' in the singular) are formed after the wet season, and such areas then become impassable quagmires. The Tine areas, which are also called Berbere, or Fieji by the Kanouri, are swamp regions, especially round the depressions of Fitri and Aouni. As their clay is more compact than in the Naga, the soil becomes seamed with formidable cracks in the dry season. The Goz is a country of sand and moving dunes, and the Hazhaz is similarly a desert type of country, very like the Hamada of the Sahara, a plateau covered with fragmented rock and sharp ridges.

THE NORTHERN DESERT

Kanem (Figs. 19 and 27)

Kanem is the name given to the region bordering Lake Chad to the north-east, and consists of an undulating plateau rising from the lake and then falling north-east and east. Much of it is covered with sand dunes usually alined north-north-west to south-south-east.

The plain immediately surrounding the shores of the lake is only

slightly above lake level, and much is swamp-land, especially after a rise in the level of the lake.

North-eastwards from the lake, a transition zone intervenes before the high-dune area round Mao. In this transition region the lower areas between the sandy undulations are less frequent and are often nothing more than shallow circular or oval depressions; in fact, an



FIG. 26. *Kanem*

increase in the typical desert-scrub vegetation is often the only sign of their existence, as the intervening rises are so slight.

In such country the problem of water supply is often more difficult than in the high-dune country round Mao, for there the dunes, some 100 to 200 feet high, are usually matched by correspondingly deep depressions, in which water is almost always near the surface, if not actually exposed.

This high-dune country is very well defined, and the crest-to-crest length is so regularly $2\frac{1}{2}$ to 3 miles that the natives are accustomed to measure their distances in crests.

The Pays Bas du Tchad (Bodélé) (Fig. 27)

About 100 miles from the lake, and nearing latitude 15° N., this

dune country is left behind, and the regions of fairly rich pasture and abundant water give way to the desert proper.

The whole of the area between latitudes 15° and 18° N. and west of longitude 20° E. is commonly called Bodélé, and is divided into five sub-areas, Egueï, Moji, Toro, Kiri, and Djourab. It is a dull empty country of vague horizons—areas of dunes, single or in groups, mobile or static, alternating with flat hard-surfaced plateaux. It has been estimated that nearly three-quarters of the total surface is covered by these dunes, which are usually crescents, backing north-east. Extensive areas on them grow tufty open grass after the rainy season, but for most of the year are devoid of any vegetation. On the plateaux hard patches of gravel or rock lightly dusted with sand are scattered with higher clumps and lines of sandstone rocks, or interrupted by low escarpments of limestone. A few sand-whitened 'had' and 'siwak' shrubs will indicate the presence of a shallow brackish well or of small supplies of subterranean water. Higher dunes are found round the edges of the large depressions such as Egueï and Kiri which lead down to Djourab, and in them both water and pasture are more abundant, though the latter deteriorates northwards and through the dry season (*see* Plate 16).

Of the depressions, Soro is the most marked. This great trough, 30 to 40 feet deep and anything from 500 yards to 3 miles wide, runs some 250 miles north-east from the lake, and at one time was thought to be the dry valley of another great tributary. Explorers later realized that the channel had been in fact the overflow of the lake, for most of the territory of Bodélé was found to be distinctly lower than the average level of the lake, and was therefore named by the French 'Le Pays Bas du Tchad'.

Dunes border the valley of Soro through almost the whole of its length, and the edges, though not usually steep, develop, here and there, into well marked cliffs. Pasture and water are to be found in it all the year, though, as would be expected, both decrease north-eastwards.

Egueï, about 115 miles long by 15 to 20 miles wide, is a chaos of dunes and small depressions, scattered with meagre clumps of 'had'. In spite of an almost complete lack of rain, subterranean water is abundant, except east of Hacha, and surface water is fairly frequent, though saline.

To the north of Egueï, and separating it from the similar depressions of Toro and Kiri, is the plateau of Moji, an almost waterless plain, with scattered moving dunes constantly burying and uncovering the areas of clay and broken sandstone rocks. The dunes that

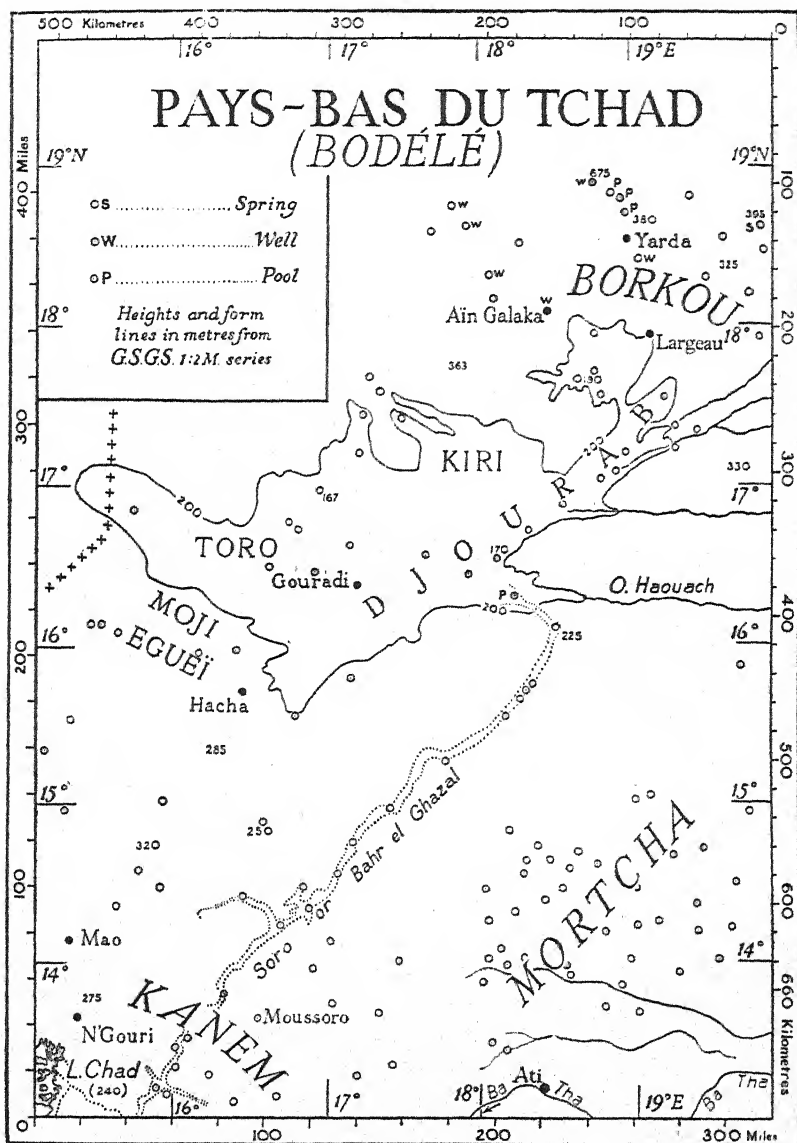


FIG. 27

fill Toro and Kiri are higher and more symmetrical than those of Eguei, but, though subterranean water is fairly abundant in the two depressions, the vegetation is more sparse, so much so that the acacia tree, which stood in lonely majesty guarding the wells of Gouradi in 1910, was a notable landmark for miles around.

With so many depressions leading to it, it is not surprising that Djourab has abundant water below the surface, but there is little vegetation between its shifting dunes, and, except after the very light and unreliable rains, the pasturing of any large numbers of stock is a problem.

Mortcha (Figs. 27 and 29)

Mortcha is the name given to the area east of the Soro and Djourab. It is an area of sand-dunes with granite tors scattered between, and is drained westwards by ouadis coming from the high land along the Sudan border. Most of these will be filled with a torrent of water for a few days each wet season but at all other times of the year they are dry. There is usually a pool where the torrent ends, some 120 to 200 miles out from the high ground, and these pools hold water for a considerable time—that at Elléla, on the Oum Hadjer, lasts after normal rains until April or May of the next year. Even below the pools the courses of the ouadi can be traced, in spite of the sand that fills them, and since the water continues seeping down the valleys under the surface, wells can be dug and water obtained even in the dry season; when pasture and all surface water have disappeared.

Borkou (Fig. 28)

Between Djourab and Tibesti is an area called Borkou, most of which is covered with sand, but its northerly position and function as the southern base of Tibesti distinguish it in several ways. Vegetation is much more sparse: the oases and areas of frequent subterranean water, typical of the Bodélé, are soon left behind, and the only water to be found is in rock pools where cliffs give shelter from sun, wind, and evaporation: the surface is much more broken, the valleys deeper with steeper sides, and the rock masses higher and larger. (*See Plates 14 and 15.*)

Aïn Galaka and Faya, now renamed Largeau, are the two most important of a line of oases running in a semicircle across the south of Borkou, and both support a sedentary population. They lie in a wide flat valley, once a lake draining south to Djourab, and, at most



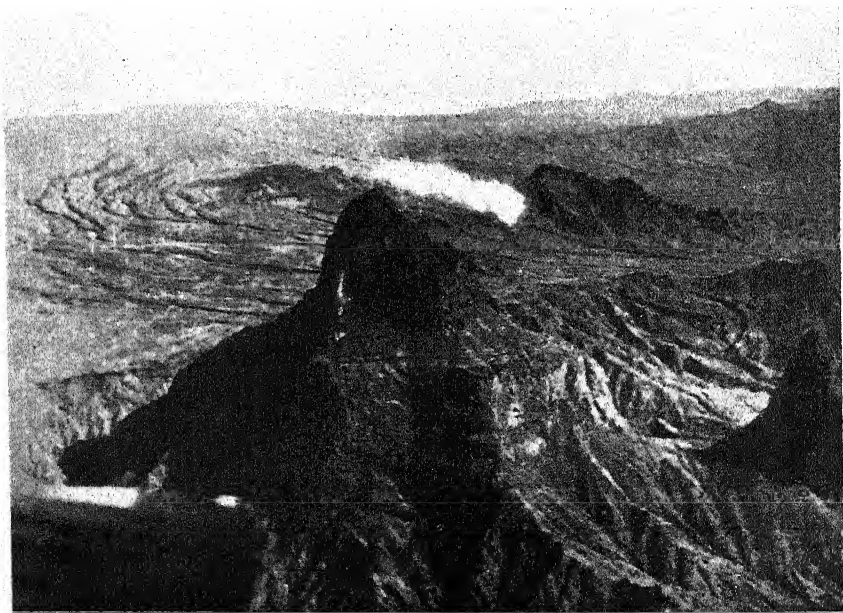
14. *Foothills of Tibesti*



15. *Borkou*



16. *Rock Desert in Bodélé*



17. *Peak of Botoum in Tousidé. Tibesti Mountains*

points in the valley, subterranean water can be obtained from shallow wells.

To the north of this line a sandstone plateau slopes gradually up to the highlands of Tibesti, scored by narrow gullies running generally north-east to south-west, and dotted with confused rocky masses and occasional dark isolated peaks.

As stated above, water is scarce, though Yarda is an important oasis on the best route north into Tibesti, and there are others of less importance. Otherwise, water is confined to an occasional shallow lake of salt brackish water or a rock pool, lying in the shelter of some cliff. These rock pools usually give a plentiful supply of sweet water, but are very inaccessible.

Those at Korou Koranga and Derso are perhaps typical, and were thus described by Colonel Tilho before the Royal Geographical Society in 1920:

'We passed Korou Koranga, where we renewed our supply of water. The spot is one of the most picturesque I saw during this journey to Tibesti: it is a natural cistern hollowed by the action of the falling waters in the deep and narrow bed of the ouadi Elleboe, a torrential river that comes down from Emi Koussi. The way to it lies through a defile more than a mile long, and so narrow that two men cannot walk abreast. The water lies at the bottom of a grotto, dark in spite of being open to the sky, whose walls wind in and out in such a way that not only the drying desert winds cannot reach it, but that even the sun's rays only penetrate to it for a few minutes each day about noon, and only get down to the level of the water during May and June, when the sun reaches the local zenith. . . . The supply of water is such that the cistern has never been dry so long as our guides could remember, however lengthy may have been the drought during which the torrent ceased to flow; the water stays clear, cool, and pleasant to the taste, without the slightest salty flavour.

'The pool of Derso, on the contrary, at the foot of Emi Koussi, near the pasture of Yon, is broad, spacious, and subject to the drying action of sun and winds; a score of yards wide, it is easy to reach, but its greenish water, stagnant and thick with organic matter, has to be filtered before it can be drunk without disgust, and a period of twelve to fifteen months drought is sufficient to dry it up altogether.'

Tibesti (Fig. 28)

Though the whole of Tibesti has not been surveyed accurately in detail, its general configuration and the disposition and heights of its main peaks are known.

It is a Y-shaped mass of volcanic highlands, whose left arm runs

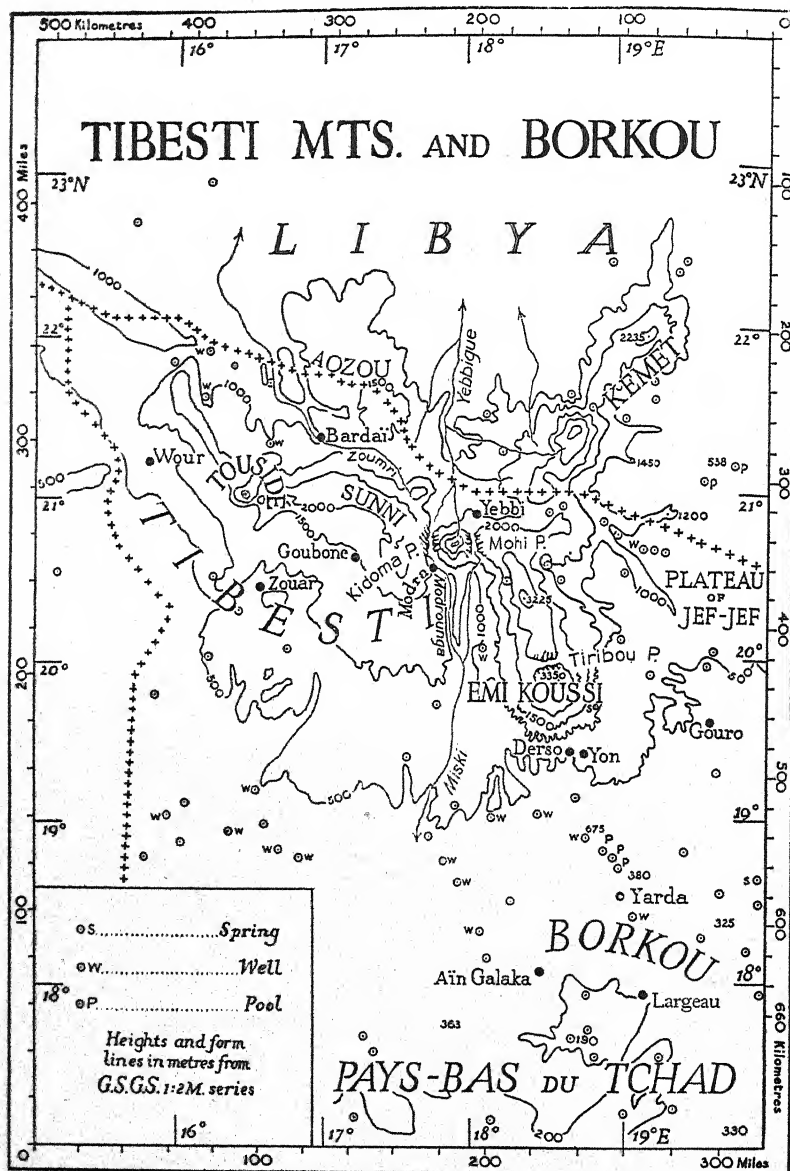


FIG. 28

north-west to the extreme northern point of French Equatorial Africa, while the right arm follows longitude 19° E. northwards into Libya. The stem of the Y terminates to the south-south-east in the vast crater of Emi Koussi, the highest point in the Sahara.

Emi Koussi is a volcano comparable with Etna—its highest points, over 10,000 feet above sea-level, are the rim of a crater, 25 miles round, half a mile deep, and with walls 500–600 feet sheer in places. From it ouadis (or 'enneris' as they are called here) radiate to the east, south, and west.

The easiest entry to the crater is along the track leading north from Yon, though an important breach occurs in the north-east—the Medounga gap. There is no water in the crater, but the rough rock-strewn outer slopes have occasional rock pools, such as that of Lantāi Kourou at 6,000 feet, most of which are accessible only to man.

The old volcano is separated by the east-west pass of Tiribou from the chaos of mountains to the north, running out to the massif of Kemet in Libya. Here grim majestic peaks rise above 10,000 feet, and dominate a rock-strewn platform, which is surrounded by long ridges, deep gorges, jagged peaks, and dizzy precipices.

To the east this mass of high ground falls in great steps to the plateau of Jef-Jef, and to the west there is an abrupt descent into the valleys of the Miski and Yebbigue, running south and north respectively. The col that separates them links the eastern to the western mass, whose general characteristics are a repetition of those of the eastern highlands. There are, however, two distinct masses separated by the Zoumri valley—the main ridge of Sunni and Tousidé, and the massif of Aozou. In the former at least two peaks are known to rise over 10,000 feet, and many others are more than 8,000 feet high (see Plate 17),

Two important routes from Borkou to Libya skirt this ridge, the first along the south-western slopes, using a line of pools and oases, of which those at Zouar and Wour are the most important; the second and more difficult, up the Miski valley, the first part of which is fairly easy, for the valley is flat and about 4 miles wide, with good pasture and date orchards. Out of the valley, tracks lead via the Mohi pass (5,000 ft.) to the Yebbigue valley, and via the Modrounga valley and Kidomma pass (6,000 ft.) to the Zoumri valley. In both cases the passage is very difficult—gullies with sheer walls end in zigzag tracks winding up a slippery slope or hanging on a ledge over a precipice: loose boulders and sharp-edged rocks strew the track, while even in

the flatter parts of the valleys great piles of boulders block them at intervals.

Though pasture is scarce, small date orchards occur, as at Modra and Yebbi, and water is obtainable in most stretches of the valleys.

The upper valley of the Zoumri lies hemmed in between the Tarso¹ of Sunni and the circular massif of Aozou, but after the oasis and fort of Bardai it opens out, as it turns north-west.

Erdi and Ennedi (Fig. 29)

To the east the mountains of Tibesti fall away to a wide col, joining them to the Erdi and Ennedi plateaux, and separating Djourab from Kufara (Kufra) in Libya.

This col is known as the plateau of Jef-Jef, and is a barren waterless desert. Blackened sandstone masses, fantastically carved by wind erosion, rise from a sea of sand-dunes. Hard patches of undulating gravel alternate with sandy plains, where one sinks deep into fine white sand. Though the rare rainstorms may evoke a temporary growth of poor open grass, the pitiless blistering sun quickly burns it up again, and even at the few scattered oases the vegetation is poor and wizened, as if the effort were too much for it. But barren and hopeless though the country is, the route from Largeau to Ounianga Kebir and on to Tekro is well supplied with water, and there are several water-points along the Mourdi depression.

Unlike the Borkou oases, which can be seen from a distance, the oases of Ounianga Kebir and Ounianga Sérir are hidden in rock-walled valleys, the former 30 yards deep, 4 to 5 miles long, and one to two miles wide. In the unfertile soil round the lakes in these depressions a small settled population grows its dates and crops, and trades them with the caravans passing through from Ouadai to the salt beds at Arouelli, or on to Kufara and Egypt. The wells of Tekro are the last in French territory on this northern route and it is a 160-mile trek to the next wells at Sarra, though the water of both is abundant and fresh.

Eastwards from Ounianga towards the Erdi plateau, another route passes the salt beds of Dimi, which lie in a huge circle of rocks and have an isolated conical peak rising from their midst to a height of 500 feet. The pasture along this route is more abundant, but only after the rains.

The plateau of Erdi lies at an average height of 4,000 feet, and is an undulating dune- and rock-strewn plain, which falls gradually to

¹ 'Tarso' is a local word meaning an inaccessible plateau.

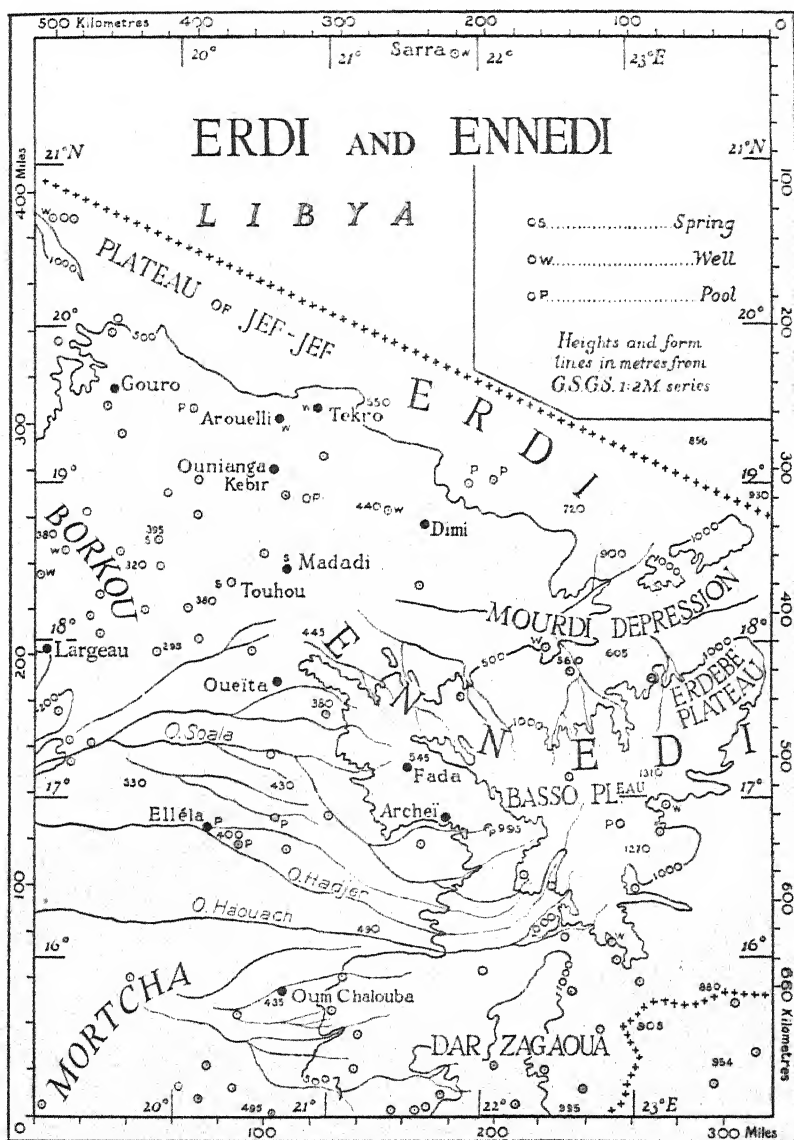


FIG. 29

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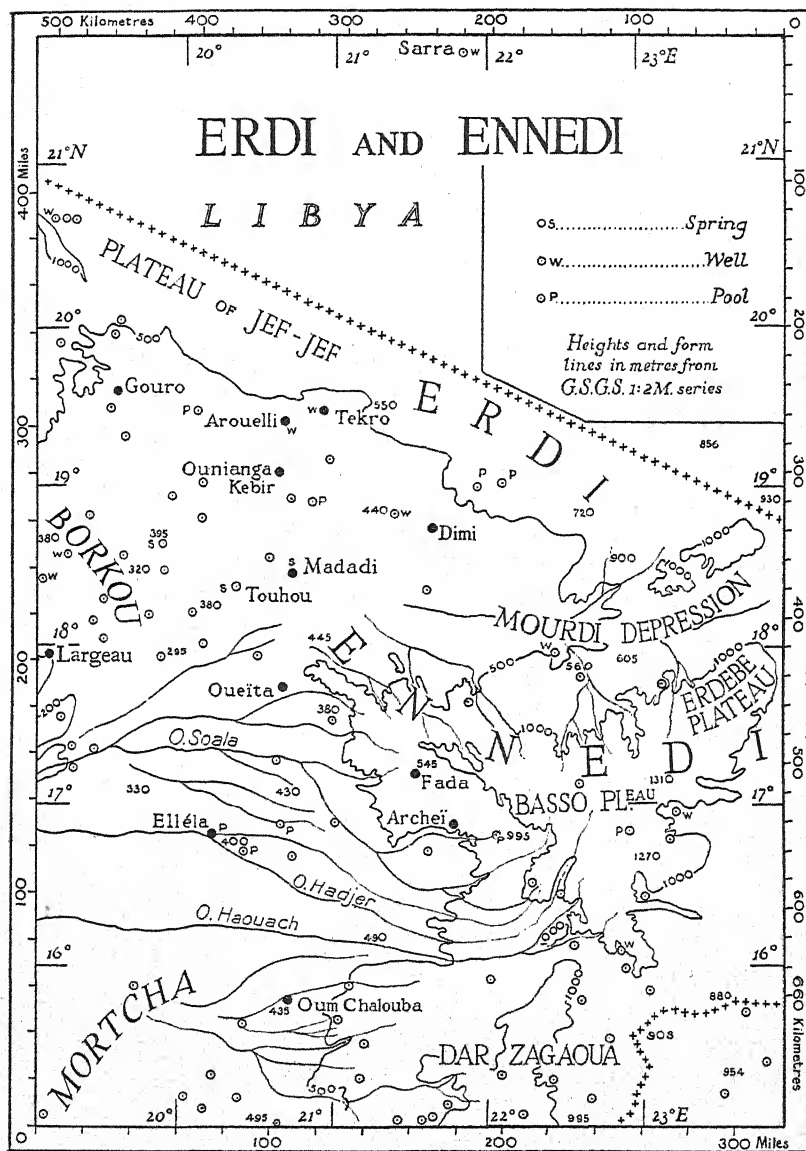


FIG. 29

the north and east. On the west and south it ends in abrupt cliffs, at the foot of which water is abundant in rock pools and seasonal pasture is plentiful.

Separating Erdi from the Ennedi plateau is the Mourdi depression, a valley some thirty miles wide from north to south, a rocky chaos sloping away westwards down to Djourab from a height of about 1,800 feet, between the two plateaux. At its western end rocky terraces, shifting sand dunes, and areas of fine white sand stretch from Ounianga to the north-western foothills of Ennedi. All are barren except near such springs as Madadi, Touhou, and Oueïta, where water and poor pasture are to be found.

The plateau of Ennedi is, properly speaking, a group of several plateaux lying in French territory between latitudes 16° and 18° N., immediately to the south of the Mourdi depression, and connecting southwards to the Dar Zagaoua by a ridge which completes the ring of high ground enclosing Bodélé.

In height and wildness this area is second only to Tibesti, for much of the plateaux of Erdébé and of Basso exceeds 4,000 feet and the rugged tablelands are intersected by jagged chains of sandstone and deep narrow gorges running in all directions—an inaccessible, hostile country, though water and pasture are both abundant in the lower parts of the gorges and at the foot of the plateaux.

To the west and south-west the plateau ends in abrupt cliffs whose foot is about 1,800 feet above sea-level. Below them, round Fada and Archeï, stretches a region of scattered sandstone rocks, abrupt escarpments, winding ouadis, and low jagged ridges. Any movement over this country is difficult and tedious, unless a dry water-course can be followed, and even then progress is easy only near the confluence of one or more ouadis, for constant detours have to be made round the rock-piles that so frequently block the bed. Care must also be taken during the rains not to be caught in a ouadi by the sudden sweep of the floods which come rushing violently down the valley.

All the rivers marked on the map for this region have a flow for only a few days or weeks after a normal rainy season, that is to say in August and September. At this time of year surface water and pasture are abundant, but at other seasons surface water is scarce and subterranean supplies are obtainable only in the main valleys or from deep wells.

This country is, so to speak, the base of the plateau. It falls gradually south-west to the plains of Mortcha, and as latitude 16° N.

is approached a region of heavier, though brief, rains is reached round Oum Chalouba, the site of permanent wells on the Abéché-Largeau route. These plains that slope gently eastwards up to the border have a denser vegetation, and in the ouadis (or oums, as they are called locally) thick patches of trees begin to appear again. After the rains rich pasture is to be found almost everywhere in the region, growing denser as one passes south to the Ouadai plateau.

THE RIVERS

The river systems of the country may be grouped into three: the permanent rivers of the southern equatorial regions; the temporary streams of the central savanna; the ouadis of the northern desert. Many of the rivers of all three systems have several names, which refer sometimes to distinct and separate reaches, and at others reflect different languages. A list of alternative names is given at the end of this chapter.

The rivers of the first group comprise the Ubangi, the Congo, and their tributaries south of latitude 6° N. All are permanent, and most are of considerable size; with the possible exception of the Alima-M'Pama all have high water with floods, and low water, corresponding to the wet and dry seasons. These rivers are extremely wide, and their beds are divided into many channels by the numerous islands. Owing to the geological formation of French Equatorial Africa, many of the rivers flow through old lake beds, and so even in their upper courses their valleys are flat and wide, with the river winding deep and dark in great loops. But these navigable stretches are frequently broken by falls and rapids, usually where the hills close in to form a gorge. Though falls necessitate a portage, over rapids there is usually at least one passage which is known to the local natives. At high water a colossal volume of water will be running, rapids and sandbanks are submerged and disappear, and vast areas of country on either side of the river are flooded.

The larger coastal systems, such as the Sanaga, Nyong, Ogowé, and Niari-Kouilou have features as above, but the smaller streams—small only by African standards—are short and steep in their upper courses, and emerge abruptly on to the coastal flats.

The second group lies in areas where there is a regular and fairly heavy seasonal rainfall, and the rivers have a two-season aspect: in the wet period, that is from May to September, there is a large rise and heavy flow, which covers rapids and sandbanks, and, particularly in the lower courses, overtops the high banks to flood vast areas on

either side. In complete contrast, the river in the dry season is a mere trickle below high banks, and may even dry up into disconnected pools: even where it is continuous, rapids and sandbanks are frequent, but the river is easily fordable. Such are the Benue, Logone, Shari and their tributaries. As an example, the Bamingui, at the point at which it cuts the Crampel-Ndélé road, is some 700 feet wide and 12 feet deep in the rains and needs a ferry to cross



FIG. 30. *The Bamingui River in the dry season*

it, while in the dry season it is barely 100 feet wide and is easily fordable. The navigability of the rivers of this group gives another instance of this seasonal change, for French writers estimate that at low water 1,250 miles of the Logone and Shari systems are navigable for long-boats and canoes, while at high water that distance is available for small river-steamers and a further 3,000 to 4,000 miles can be used by whalers and canoes.

In the third group the valleys have water in them for only a short period in each year. In the northern half the flow will last only for a few days, but is violent and torrential; for the rest of the year the valley is a dry gully with a sandy or boulder-strewn bed, and an occasional pool which lasts a week or two after the flow. The upper courses are deep and narrow, and where the highlands are left a pool or marsh usually persists for some weeks. Except in the case of a few stronger streams, the flow does not carry far out into the lowlands, but the form of the valley can be traced on, and subterranean water can be tapped. In the southern half of the area, as one approaches latitude 12° N., the ouadis become increasingly like normal valleys, wider and less deep, the period of flow longer, and the bed more definitely marked. The Ba Tha, for instance, has tributaries which rise in areas of fairly heavy rainfall, and the river has a regular flow from the end of July to the end of September, with a depth of 4 or 5 feet and a width of 150 to 200 feet. At other times it is a few inches deep and only about 20 feet wide.

As the rivers are so important a part of the communications of the country, details of their main falls and the degree to which they are navigable will be found in the 'Communications' map.

WATER SUPPLIES

Water is everywhere frequent south of latitude 12° N., both from rivers and wells.

North of this latitude, in Chad, water from wells is more widespread than the climatic conditions would lead one to suppose, especially in Kanem and Bodélé. These subterranean supplies can often be supplemented from the numerous 'natron' meres, though the taste of this water is somewhat unpleasant.

The known wells of the desert and semi-desert areas are shown in Figs. 27, 28, and 29. No information is available in most cases as to quantity and depth, but the list below gives certain facts about the supplies in areas where a sedentary population exists.

<i>Departments</i>	<i>Sub-Divisions</i>	<i>Approximate average of population using wells</i>	<i>Depth of wells in feet</i>
Bas Chari . . .	Lamy	60,000	25 to 30
	Massakori	24,000	30 to 40
	Bokoro	34,000	80 to 90
Ba Tha . . .	Ati	52,000	50 to 60
	Mongo	78,000	15 to 20
	Oum Hadjer	61,000	15 to 20
Kanem . . .	Moussoro	21,000	40 to 50
	Mao	38,000	30 to 40
	Bol	20,000	Shallow
	Rig-Rig	12,000	10 to 20
	Zigueï	45,000	40 to 50
Ouadai . . .	Abéché	81,000	40 to 50
	Adré	44,000	30 to 40
	Biltine	60,000	20 to 30
	Faya (Largeau)	15,500	{ Water plentiful from shallow wells.
Ennedi . . .	Fada	11,300	
Tibesti . . .	Zouar	5,300	

RIVERS WITH ALTERNATIVE NAMES

Most of the rivers of this, as of other central African countries, have several names. In some cases this is merely due to the attempts of different travellers to transliterate the same native name, but more often the differences are genuine, and due to the many tribes living along the banks.

The known alternatives for those rivers mentioned in the description of the country, or in the diagrams of this chapter, are listed alphabetically below.

Alima; Kounya; Mbochi in lower course; Oukara and Léketi in upper course.

Bahr Aouk; Bakaré; Ouadi Taoual in Anglo-Egyptian Sudan; Bounghoul or Bahr Kameur in Dar Rouna.

Bahr Azoum; Bahr Mangari; Bahr de Raz el Fil in mid course.

Ba Mbassa (= 'little river'); Ba Batchikan; Bahr Erguig.

Bamingui (= 'much water'); Bahr el Abiod in Arabic; Vanza in Ndouka.

Bitcha; Little Batha; Oued Djelos.

Boulou; Voulou; Bahr Kavadjia.

Campo; N'tem; Tembo; Etembo; Méhounda; Yomo, near mouth.

Chinko; Kpoakpoa; Paperwer; Kinga.

Como; Oloumbo Mpolo; Komo.

Congo; Ouloumou, Olumo, Oliemo, by the Batéké; Nzali or Ndjali in Lower Congo; Zaïre in Portuguese.

Dja; Ngoko in lower course.

Djérem; Ndjereng; Dyérem.

Dji; Nzi.

Djouah; Yendjé; Yessé.

Eyo; Voleu; Woleu; Ilongo; Lolo; Ilolo; Ouolo; Ouellé; San Benito (Spanish), for estuary.

Foulakari; Nkenké; Ngoudi; Foulakando; Lalamba.

Gribingui; Voulou in Ndouka; Bahr el Azreg in Arabic; Nana in Mandjia, and for upper course.

Ivindo; Livindo; Livingoué in Bakalai; Izinda; Aïna in upper course; Aghuiné (= 'black') in Fang.

Kadeï; Kali; Ekéla Massiépa; Boumbé II in mid course; Doumé in upper course of one branch.

Koto; Aboungou in Kreich; Kouta in Banda; Kota in Nsakara; Bondou in Yakoma.

Kouango (in Banziri); in upper course called Ouaka by the Banda.

Kouilou; *see* Niari-Kouilou.

Kouyou; Couillou; Lebaï Ngouko.

Likouala; Likouala Mossaka; Licoulna; Ndéba; Motouali; Bossaka; Licona.

Likouala aux herbes; Likouala Essoubi.

Lobaye; in upper course Bali.

Logone; near Laï, Ka, Kama, Kouraï, Sorbo; upper course of W. Logone, Bini or Wina; upper course of E. Logone, Penndé, Bandoulé or Baï Haya in the Mbaï country.

Louessé; Louassa; Louiza; Louété.

Mambili; Opa.

M'Bari; Mbali; Botow.

M'Bomou; Kengo-Mbomou.

Molaba; Motaba; Mokala; Botaba; Botabo.

Mpoko; Konga.

Nana; Gbandala.

N'Gounié; Ouango.

Niari-Kouilou; Nguella; at first Ndouo; in middle course Niari; or Niadi; near its mouth Kouilou.

N'Kémi; Asingo Nkéni; Mpama.

Nyanga; Njongo.

Ofoué; Gogou.

Ogowé; Ogoué or Ogooué in French; Ogobi or Agabé by the Bakalai; Rembo Mpolo (= 'the great river') by the Galoa; Otemboué by the Okanda; Rembo Okanda or Lébagny by the upper river people.

Okano; Koun.

Ouarra; Wella; Woula.

Sanaga; Grand Nyong; Moanya.

Sanga; below Nola, Maïa Massangha, Kali, Massa, Dono, or Bali; above Nola, Ekela; above Carnot, Mambéré.

Sara; Ouam or Ouahme in upper course; Oua in middle course; Babo or Bahr-Tiangui in lower course.

Salamat; Kô in Tounia; Guinph in Arabic.

Shari; Chari to the Baghirmiens; Laloum to the Tounia; Manéba to the Kaba; Baboulou to the Sara; Koindoué to the Boua.

Soro; Sar-Sar; Bahr el Ghazal.

Temboni; Rio Mouni or Muni.

Ubangi; Oubangui; Mboundou; Mboundgou; Ncoumta; Liboko; from Yakoma to Bangui, Doua or Té Kota (= 'the great river').

CHAPTER III

DETAILED TOPOGRAPHICAL DESCRIPTION OF COAST AND IMMEDIATE HINTERLAND¹

1. *The Lie of the Land*

FROM John o' Groat's to Land's End, by air, is 603 miles; from Douala to Pointe Noire, 625; but the coastline between the latter is only 1,100 miles long—100 miles less than the coastline from Land's End to the head of the Solway Firth. It is obvious that French Equatorial Africa lacks natural harbours; indeed, the only capacious estuary is that of the Gabon river. There are also few islands.

The beaches are generally sandy and surf-bound. Steamers lie a mile or so off the shore and tranship passengers and cargo into surf-boats. Behind the shore a coastal plain stretches inland for a distance of from 3 to 20 miles, and beyond the plain rise the terraces of the central African plateau, over the edge of which, or through slotted gorges, the rivers tumble, in falls and rapids, on to the plain. In the rainy season the streams of the plateau expand into lakes. The river mud forms bars at the mouths, and, south of Cape Lopez, the cool Benguela current, flowing northwards from the Antarctic, pushes these mouths northwards and forms a series of lagoons, partially separated from the sea by long sand-spits pointing to the north. At Cape Lopez the main stream of the Benguela current turns to the west, but the remainder follows the coast until it meets the easterly set of the warmer Guinea current at the Cameroon river.

On the creek-sides the mudbanks are covered with mangrove thickets, obstructing access. Coral is found on the sea-bed, but the brackish spate of the Niger, Ogowé, and Congo, borne by the currents, is unfavourable to its growth and there are no barrier reefs.

Along the coast and up the creeks various countries have trading factories which sell cotton piece goods and other manufactures and buy raw products. Among these firms, in Equatorial Africa or the Cameroons, are the French Compagnie Française de l'Afrique Occidentale (C.F.A.O.) and Société Commerciale de l'Ouest Africain (S.C.O.A.) and the British John Holt & Co. Ltd., Paterson Zochonis & Co. Ltd., R. & W. King, Elder Dempster & Co. Ltd., and United Africa Co. Ltd. The produce purchased consists mainly of palm

Note. Throughout this description, mileage is given in *statute* miles.

kernels, palm oil, cocoa, bananas, coffee, timber, ebony, dye woods, and ground-nuts. The palm oil and kernel oil yield glycerine, used in the manufacture of explosives, and the hard woods are suitable for the construction of aeroplanes.

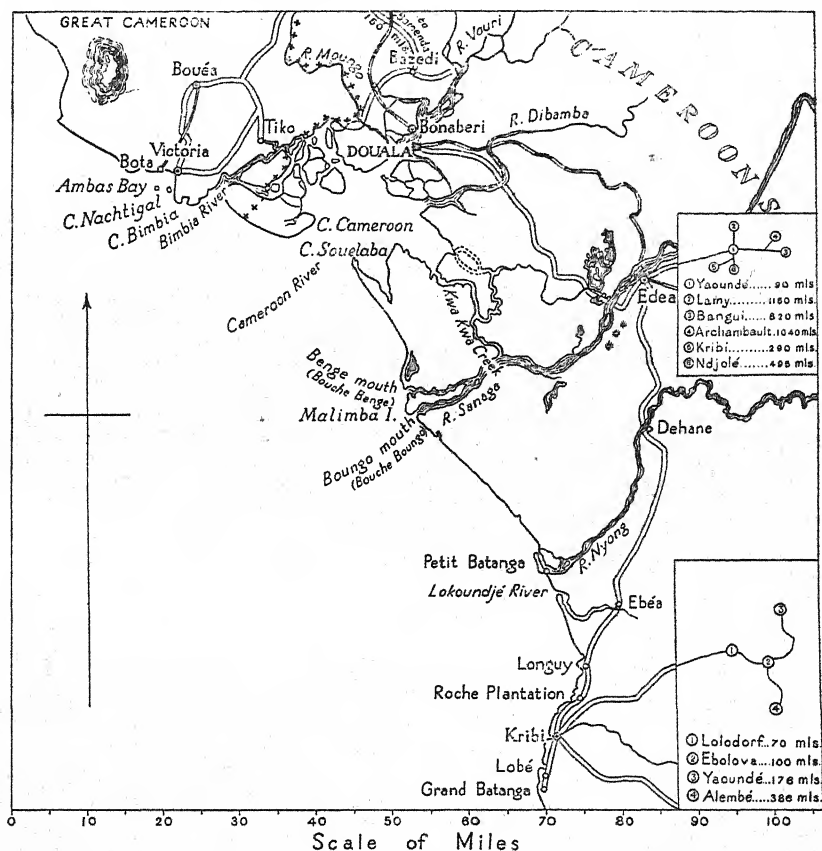


FIG. 31

2. From the British Frontier to Douala (Fig. 31)

The Cameroons, British and French, are parted, on the coast, by the rampart of the Great Cameroon and the fosse of the Cameroon river, named by the Portuguese, from the shrimps (*camarões*). Eight miles west of Cape Cameroon the boundary dips to sea across a flat island which separates the Bimbia and Cameroon rivers. In the French Colonial Atlas the island is called Île Nicol, but it is unnamed

in the British chart which shows Nicol Island as a high, thickly wooded islet inside the Bimbia river. Bota, Victoria, and Tiko, the British ports nearest to the frontier, lie within a radius of 34 miles from the French port of Douala. The first two are situated in Ambas bay, where steamers can load cocoa in safety. Ashore, there is an aeronautical radio communication station and there are botanical gardens. From Bota a railway climbs to the British Residency at Buea. To the south the coastline continues to Cape Nachtigal, with its lighthouse, and to Cape Bimbia. The logs and bananas of Tiko

Little Cameroons Mountain



FIG. 32. *Bota*

are shipped by ocean-going vessels from the estuary of the Bimbia river, the last inlet in British territory. Before 1939 practically the entire banana output of the British Cameroons went to Hamburg. Tiko has a landing-ground for planes.

3. *Douala and the Cameroon river*

From the Bimbia river to the Lokoundjé, or Lokunji, 3 miles south of little Batanga (Petit Batanga), the coast is one vast delta pierced by the estuary named the Cameroon river. Across the bar and inside the entrance, between Cape Cameroon and Cape Souelaba, 6 miles apart, the estuary expands into a five-pointed star, 7 miles long and 230 square miles in extent, fed by the rivers Moungo or Mungo, Vouri or Wouri, and Dibamba or Loungasi. The town of Douala, with airfield, wireless, telegraph, quays, mooring berths, seaplane mooring area, floating dock and a population estimated at 31,000, is situated on the south-east bank of the Vouri, where it is three-quarters of a mile wide. Created by the Germans out of two native towns, Akwa and Bell, it contains trading factories and a vigorous local market. The Doualas are keen middlemen and have traded with

the British since the seventeenth century. Several British firms have branches in the town.

Douala is the terminus of a railway from Yaoundé (Yaunde)—with a branch serving Mbalmayo on the river Nyong. A ferry crosses to Bonaberi, the terminus of the line to Nkongsamba (100 miles). Douala has motor-road connexions to the north (to Bamenda);



FIG. 33. *Victoria and the Great Cameroon*

but to join the road it is necessary to go 10 miles by water, either to the mouth of the Moungo river or up the Vouri. The two road-ends meet at Bazedi. Edéa, provincial headquarters, with its landing-ground, lies 35 miles, in a straight line, to the south-east of Douala and there is a motor road between the two, the line of which is interrupted by the Dibamba river. Edéa is also connected by motor road to Yaoundé, Lamy, Bangui, Archambault, Kribi, and La Lara. By taking train to Yaoundé, all the larger towns of the French Cameroons can be reached by car and one can tap the motor-road system of French Equatorial Africa and travel to Lamy and Algeria; to Bangui and on to Cairo or Mombasa; and to Bata, in Spanish Guinea. Nkongsamba (the terminus of the Northern Railway) is the starting-point of motor roads to Tchang, Bafoussam, and Foumbam which connect, at a point north of Yaoundé, with the main road system of the Cameroons.

The channel leading to Douala has been dredged and the silt used to make up the Boulevard Maritime. The passage is still long, narrow, and difficult, if not dangerous. Mail steamers lie off Cape Souelaba.

There is a river service up the Vouri, which is navigable for 20 to 30 miles, according to the season. On the western side of the estuary are five short cuts, through creeks, to the Bimbia river and access to the interior by launch up the Moungo, while, on the eastern side, boats can ascend the Dibamba for 35 miles and launches can pass through the Kwa Kwa Creek to the river Sanaga, in the rains.

4. *Coastwise to Kribi and the River Campo* (Figs. 31 and 34)

It is 69 miles along a surf-bound sandy beach from Cape Souelaba to Kribi. The coastal strip is low and wooded and expands or shrinks as the first terrace of the inland plateaux approaches or recedes from the sea. At Petit Batanga the plain is only 3 miles wide, but the

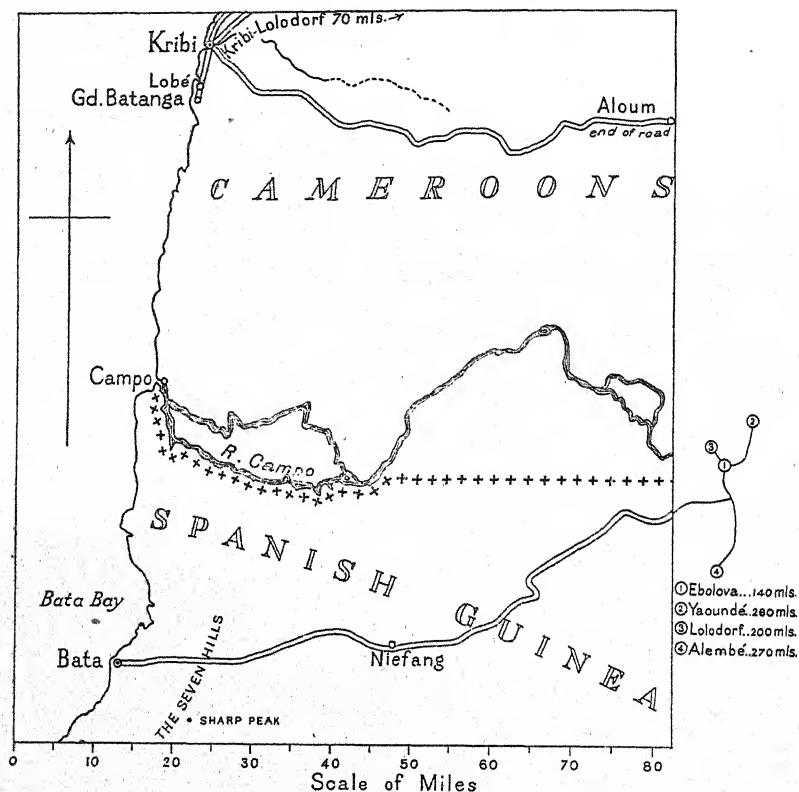


FIG. 34

distance varies with the irregularity of the steps and treads of the natural staircase. The plain is broken 19 miles south-east of Souelaba by the Benge and Boungo mouths of the Sanaga river and its 2 miles wide delta, Malimba island, at all of which there are trading factories.

The Sanaga or Grand Nyong or Moanya has a course of 560 miles, but navigation is interrupted by a 50-foot waterfall, at Edéa, 45 miles upstream. The southern channel (Boungo mouth) provides the better entrance and anchorage, although it has a bad bar.

Petit Batanga is a small trading settlement, situated on the south side of the mouth of the river Nyong or Njong, twenty-six miles south of Bouche Boungo. Once the bar is crossed, vessels find good anchorage and small vessels can ascend for 35 miles and connect at Dehané with the motor road from Kribi to Edéa. The road can also be tapped at Ebéa, up the entrance of the Lokoundjé river, which enters the sea 3 miles south of the Nyong. There are British and former German factories both at Longuy (or Longji) and at Roche Plantation, on the coast, 10 and 14 miles south of the Lokoundjé river, and these are connected with the same road, by which Longuy is distant 12 miles from Kribi.

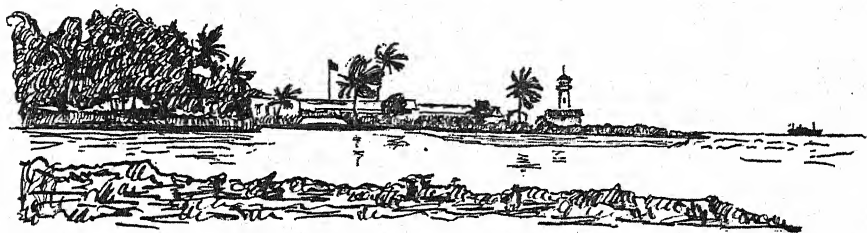


FIG. 35. *Kribi*

Kribi (port, telegraph, aeronautical radio communication station, landing-ground and provincial headquarters) lies tucked away inside the mouth of the Kribi river, 62 miles long but blocked at the head of the harbour by a fall of 20 to 30 feet. The harbour, with a quay, is sheltered and there is good anchorage outside the bar. A bridge spans the river and from the north end a motor road runs to Lolodorf, Ebolova, Yaoundé and thence to the north, and also to Bangui, and so across the Belgian Congo to Uganda. Near the south end of the bridge is the head of a track, also to Ebolova, which is connected by motor road with Djoum, to the east, Alembé on the Ogowé, and Bata (by a branch road from the Ebolova-Alembé road). There is also a road running south-east to Aloum (65 miles) and a coastal road running south to Lobé (6 miles) and Grand Batanga (30 miles). The local fishermen belong to the Batanga and Mabea tribes.

From Kribi to Campo (44 miles) the coastal plain has an average width of 7 miles. There are a few factories on beaches where the surf is less dangerous. It is perilous between the two southern factories of Grand Batanga.

The Campo or N'tem drops down from the plateau 30 miles from

the coast. After dividing and forming an island 25 miles long, the streams rejoin at its mouth, where there is a bad bar but deep water inside. The southern channel forms the boundary between French Cameroons and Spanish Rio Muni. The French have a trading-station and a post and telegraph office at Campo, on the right bank of the main channel, near the river-mouth.

5. *Bata, the Rio Muni, and Corisco Bay* (Fig. 36)

Rio Muni (Mouni) is part of the colony of Spanish Guinea, but a brief account must be given to avoid a gap in the description of the coast.

The low shore, studded with villages hidden in forest, is backed by a notable coastal range called the Seven Hills (Las Siete Colinas). Off the south coast the seas contain banks and shoals, currents and some uncharted rocks, and mirage effects are seen. The chief coastal features are the town of Bata, with fair anchorage off shore; landing-beach on the edge of the plain, north of the town; landing-ground for planes; motor roads to Ambam, and Yaoundé (in French Cameroons), and Bitam, Oyem, Mitzig, and Alembé (in Gabon) and from Benito to Calatrava (south of Cape San Juan); Rio Benito, with good anchorage outside and inside and wireless and aeronautical radio communication stations at Punta de Arena (Joho Point) on the left bank; the Rio Muni, navigable by large vessels for 10 miles, and the small Spanish islands of Corisco, Elobey Grande, and Elobey Chico. Corisco (Portuguese for lightning, from the weather experienced by the discoverers) supports a population of a thousand Bengas, a seafaring tribe also found at Cape San Juan and on the coast between Cape Esterias (or Esteiras) and Cape Santa Clara. They make good pilots. The other two islands have few inhabitants. The banks of the Rio Benito and of the Kongué (a tributary of the Rio Muni) are inhabited by Balengi or Balingui—hunters, traders, and travellers. Another local tribe is that of the Baséké, or Boulou, as they are generally known to Europeans. They are found on the estuaries of the Rio Muni and Gabon river and at Mondah bay. Most of the population of Rio Muni, however, are Fang (or Pahouins), a pushing and adaptable forest tribe who make good paddlers.

The centre line of the fairway of the Rio Muni, from its mouth as far as the junction of the river Temboni, or Tembony, marks the southern boundary of the Spanish territory. The Spanish sub-Governor for the district of Elobey (which includes the islands) is to be found at Kogo, at the junction of the rivers Muni and Kongué.

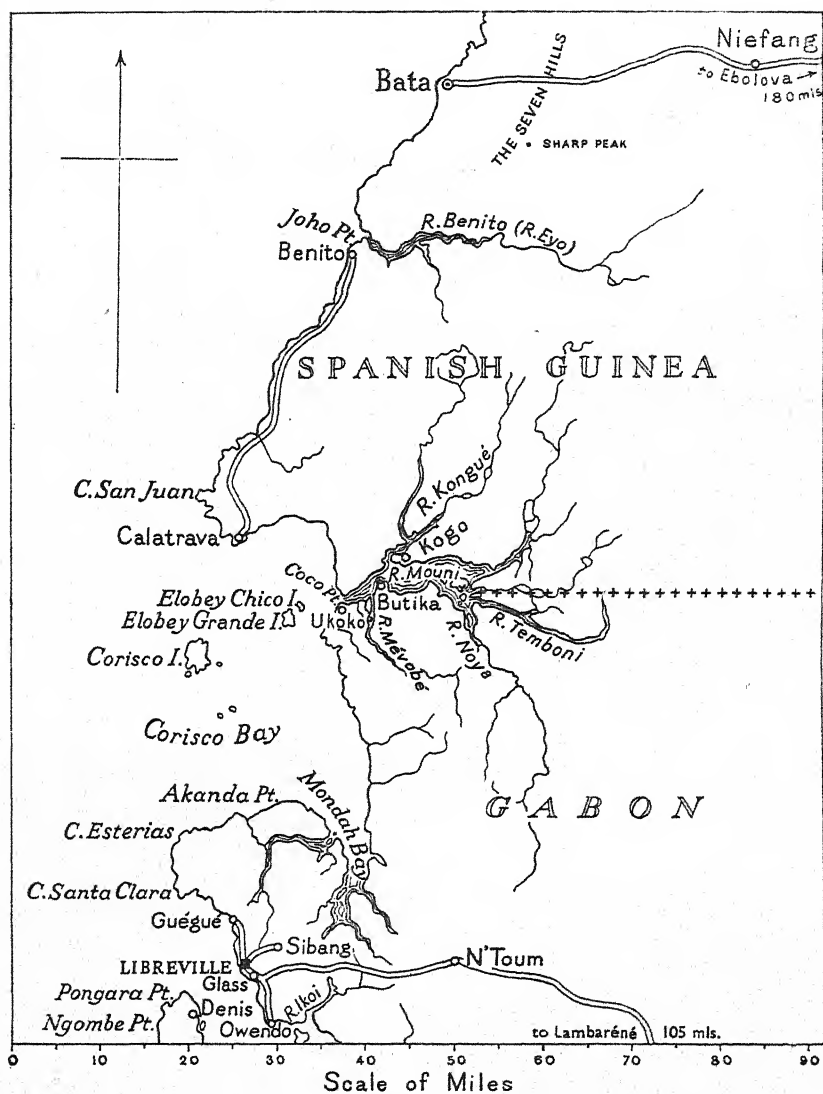


FIG. 36

On the French side are a government station and camping site at Ukoko, near Point Coco (Coco Beach), the village of Butika near which there is good anchorage and landing and a British factory, and the mouths of the rivers Temboni and Noya (or Noyo), navigable by small vessels for 12 miles and 3 or 4 miles respectively. River steamers of shallow draught can ascend the Temboni for 30 miles. Another

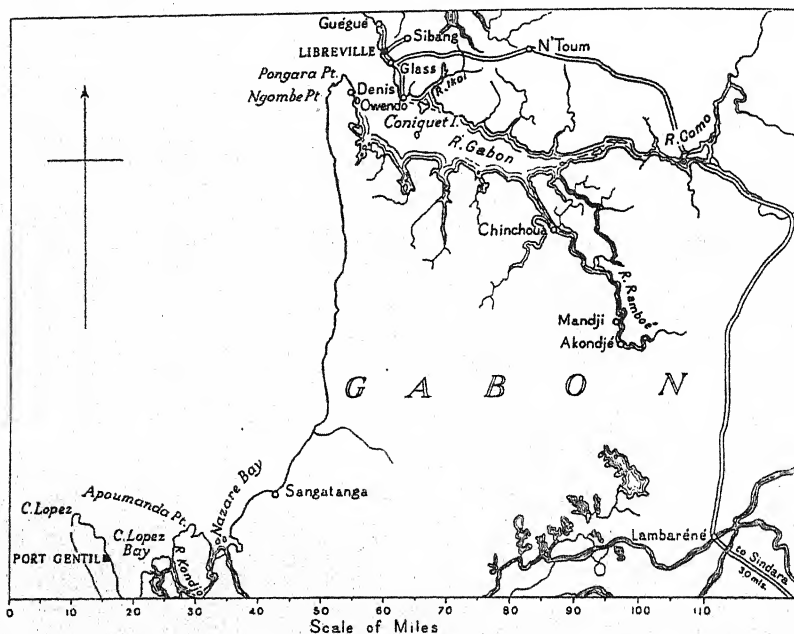


FIG. 37

French tributary, the Mévobé, filters into the Muni by several small unserviceable channels.

Corisco bay (between Cape San Juan and Cape Esterias) and its south-eastern arm, Mondah bay, are full of sandbanks and mangroves. The isthmus between Mondah bay and the Gabon river is so narrow that canoes can be hauled across.

6. Libreville and the Gabon River (Figs. 36 and 37)

The Gaboon or Gabon river has been known to British shipping for centuries. The mouth, 10 miles wide, between the low cliffs of

Cape Santa Clara and the sandspit of Point Pongara, has been pushed northward by the sea current. The horn of the inlet pierces the land for 40 miles till it meets the waters of the Como or Komo and Ramboe, which are navigable for 50 and 43 miles respectively. There is a passage for boats, by creeks, from Akondjé, near Mandji on the Ramboe, to the town of Lambaréné on the river Ogowé. The eastern side of the estuary is flanked by chalky hills, 300 or 400 feet high and 1 to 5 miles from the coast, while its western shore is alluvial. The banks are verdurous and the mangrove swamps reach the sea, obstructing landing, except where there are gaps in the mangrove thickets. The estuary affords good shelter and anchorage, but



FIG. 38. *Libreville*

14 miles above Point Pongara the water shoals. The port is Libreville, so named because blacks rescued from the slaver *Elizia* were landed here in 1849. It is a town estimated to contain 4,500 inhabitants, with landing-ground, aeronautical radio communication station, telegraph, wireless, cable, petrol store, French Administrator (*chef de territoire*), and British Consul. In peaceful times, steamers from Europe and planes from Dakar call regularly. The town of Glass, about a mile to the east of Libreville, is the chief emporium of the river, while $9\frac{1}{2}$ miles upstream from Glass, Owendo or Ovendo, healthier and more sheltered from the swell than Libreville, was fancied as the future port. It lies near the mouth of the Ikoï river, which is navigable for 7 miles. The communications of Libreville are by water. A few local tracks run north to Guégué, east to Sibang and N'Toum and the river Como, and south to Owendo. A coastal track from Denis village (opposite Libreville) leads to Sangatanga, where it unites with a track from Chinchoua (on the Ramboe), continues overland to the Ogowé river, and connects to Port Gentil. Recently (1942) a road has been made from Libreville through Sindara to Dolisie on the Loango-Brazzaville road.

7. *Port Gentil and the Ogowé* (Figs. 37 and 39)

From Point Ngombé, outside the mouth of the Gabon river, to Cape Lopez is 77 miles. The yellow ribbon of sand and green strip of trees merge, at the equator, into dunes; then into grassy plains set in forest; and finally into the mangrove-clad shore of Cape Lopez bay and its arm, Nazaré bay, with Point Apoumanda or Apumenda (Fetish Point) at its entrance, where stood the barracoons from which slaves were embarked on slavers lying off Cape Lopez.

For 8 miles north and $4\frac{1}{2}$ miles south of Cape Lopez the sea is stained by the flood of the Ogowé, which in its 600-mile course collects the streams of 83,000 square miles and pours them through its undershot mouths. Agelong deposits of sludge, moulded by the Benguela current, have created a delta 50 miles wide, commencing at Lambaréné, 92 miles from the coast as the crow flies, and terminating in Cape Lopez, the most westerly point of French Equatorial Africa.

The Ogowé has several outlets; its creeks, lakes, and lagoons, a number of which are navigable, form a watery maze. In Nazaré bay there is one mouth (dangerous) and two navigable creeks which lead to the river. From Cape Lopez bay proper there are two navigable channels—the river Kondjo which leads to the town of Falaba, where vessels can tie up to the bank, and the river Yombé which, either by the Mandji or by the N'Komi channel, is the most direct route from Port Gentil. The Ogowé has two outlets south of Cape Lopez—the river Animba, 26 miles to the south, and the mouth of the Fernan Vaz or N'Komi lagoon (where there is a landing-ground for planes and a French residency) 24 miles farther south—but neither is available as an entrance, although the Animba and the Fernan Vaz lagoon are both navigable by the river steamers of the Ogowé, when the height of the waters permits.

River craft can tow barges of from 50 to 100 tons up the Ogowé as far as Lambaréné, except in March and August, and 50-ton barges can navigate a tributary, the N'Gounié, between Lambaréné and Sindara, from October to February, and occasionally in April and May: during the rest of the year the N'Gounié is only available for pinnaces, which can also navigate the Ogowé up to Alembé. Above that, the Ogowé and its tributary, the Ivindo or Livindo, are divided by rapids and falls into sections which are available for pinnacle traffic during the season of high water. This may necessitate portage of craft past the falls. The Chargeurs Réunis' stern-wheelers visit

the lakes south of Lambaréné, while La Société d'Entreprise et de Transports has served the river above Ndjolé.

Port Gentil, the port of the Ogowé, has good anchorage. It is the headquarters of a province, an airport (with customs facilities), and equipped with landing-ground, camping site, petrol store, two piers, patent slip, telegraph, trunk telephone and wireless, seaplane mooring area, and large hospital. Logs are sent down the Ogowé and collected in a floating wood store in the roadstead. There are no roads out of Port Gentil, the country being intersected by creeks. The coast tribes are the Mpongoué, Oroungo, and Bavili.

8. *Cape Lopez to Mayoumba* (Figs. 39 and 40)

From Cape Lopez, south to Mayoumba, 240 miles, the mariner sees lines of surf, sand, and bush, broken by a series of lagoons. For the first 94 miles (to Point St. Catherine) the rim of hills is interrupted by the basin of the Ogowé. Then, a coastal range rises 30 miles inland and converges on the sea at Point Panga, at the north end of Mayoumba Bay. As far as Setté Cama the country is a *terra infirma*, waterlogged during the rains and sparsely populated by the Baloumbo tribe. There are tracks from Mayoumba, connecting with various villages within a range of 150 miles from the coast, but there are no through motor roads. Steamers have to anchor off the coast. There is a heavy swell, and landing by surf-boat is not easy.

This part of the coast has few striking features. First comes the Fernan Vaz lagoon which has already been mentioned. Ninety-four miles south of Cape Lopez, the village of Iguéla, with landing-ground for planes, factories, and off-shore anchorage, is situated at the mouth of the N'Gobé lagoon which is navigable inside by vessels drawing up to 3 feet. The next settlement is Setté Cama, 150 miles south of Cape Lopez and situated at the head of a sandspit, 9 miles long, which banks the channel leading to the Sounga, Simba, and N'Dogo lagoons. Entry is tricky and only by canoe. At Setté Cama there is a French Administrator, a factory, and a telegraph office. The anchorage is exposed to a heavy swell.

South of Setté Cama are the lagoons of Vévy and Badingo. The latter has an entrance $11\frac{1}{2}$ miles long and a village (Yendji) near its mouth. Forty-six miles south of Setté Cama the river Nyanga enters the sea, after running parallel to it for $4\frac{1}{2}$ miles. It has a bad entrance, and the settlement of Nyanga, with factories and telegraph office, is situated on the sea coast.

At Mayoumba there is a residency, camping site, emergency

landing-ground, some bungalows and factories, and a telegraph office. There is good anchorage and shelter from south and south-east winds, but surf-boats are required for landing. Mayoumba is situated at the

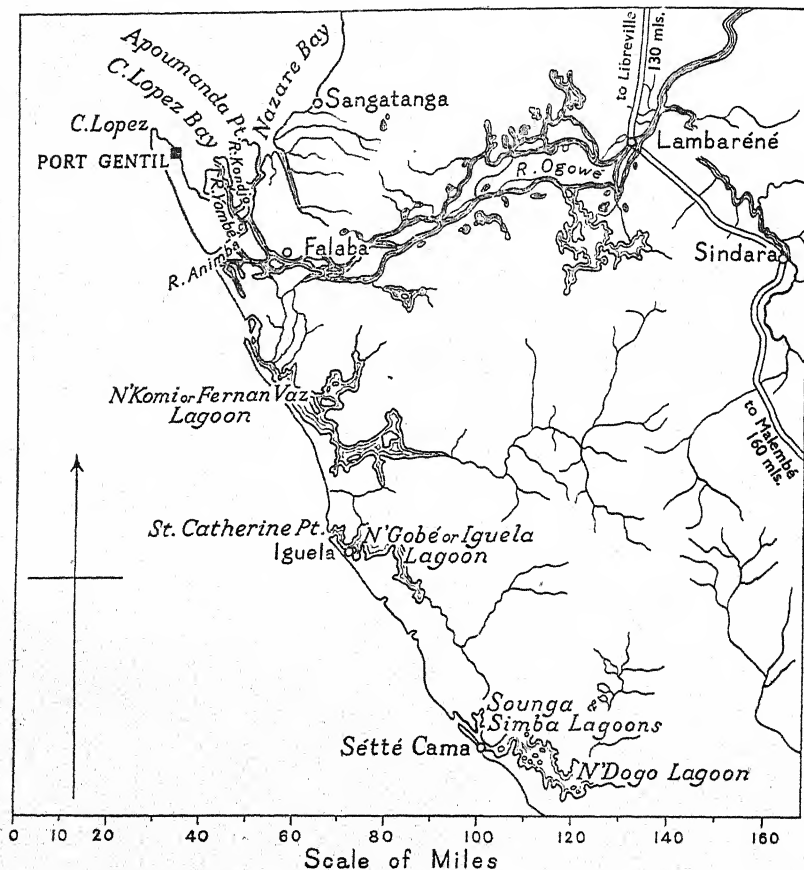


FIG. 39

mouth of the M'banio lagoon, which has a narrow outlet, 18 miles long.

9. *Mayoumba to Pointe Noire* (Fig. 41)

South-west winds drive one or more lines of heavy rollers on to the beaches. Vessels lie at a distance off shore and surf-boats are required for landing. Coastal ranges run for 35 miles, then decrease in height, and at 70 miles give place to low, bare hills and dunes. After the

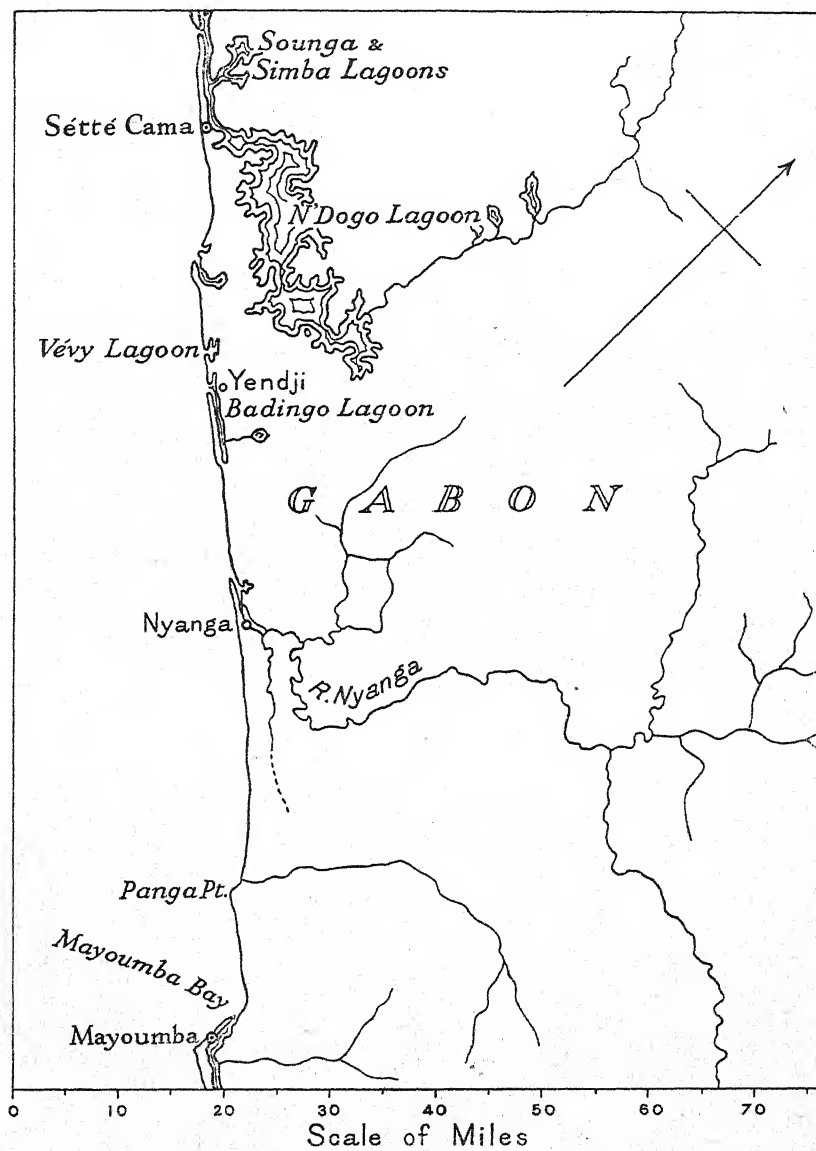


FIG. 40

river Kouilou the coast rises towards Loango, and, behind the coast, a chain of hills decreases in height towards the south. Loango is situated on bluffs, which are succeeded by a wooded plain, in the bay of Pointe Noire.

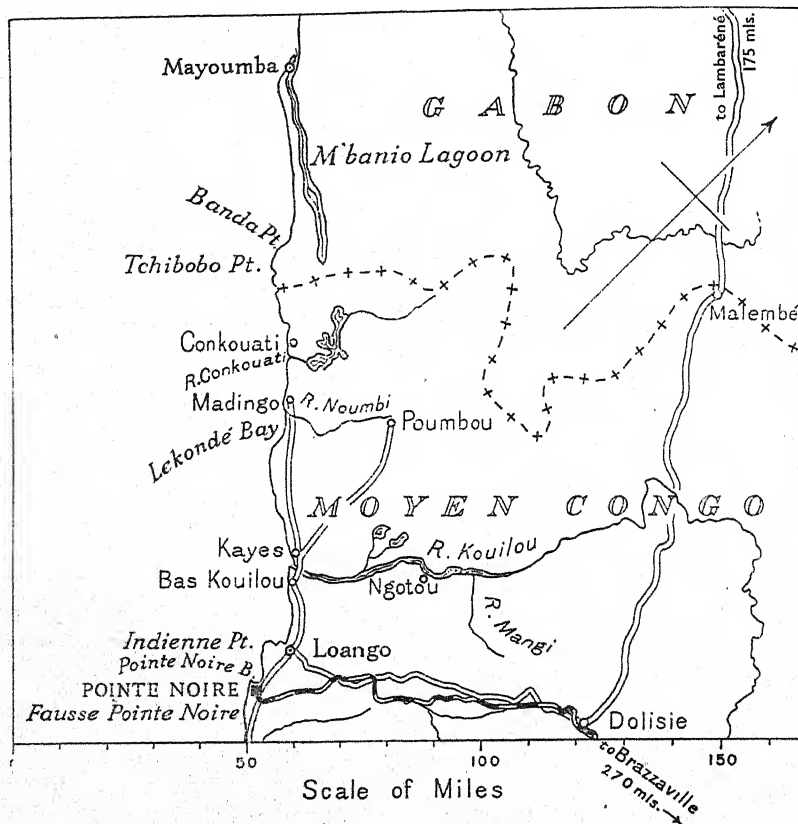


FIG. 41

Sheltered anchorage is available north of Pointe Banda, but once Point Tchibobo has been rounded ($3\frac{1}{2}$ miles south of Pointe Banda) there is no shelter for 31 miles and a long bank makes navigation dangerous. Surf is heavy off the mouth of the river Conkouati, where there is a village and a telegraph office. Eleven and a half miles south of this river is the river Noumbi, which has two settlements on it—Madingo, at its mouth, and Poubou, 30 miles upstream—both connected by motor road with Pointe Noire. The bay of Lekondé

(31 miles south of Point Tchibobo) is often swept by a heavy swell, making landing difficult.

Twenty-seven miles south of the bay of Lekondé, the Kouilou enters the sea at Kayes. As this river drains a basin of 23,000 square miles and begins its course near the Congo, great efforts have been made to utilize it, but it is handicapped by a bad bar which compels sea-going vessels to anchor outside, and its middle reaches are divided by falls and rapids into stretches of from 4 to 12 miles. The lower waters are navigable by small steamers (if they can scrape over the bar) up to Ngotou, 30 miles in a straight line from the coast. It is there that the river enters the plain, after contracting from 900 to 160 feet (when it passes down rapids between cliffs) and expanding again to 1,300 feet. Launches serve the plantations on the lower river and reach Mangi, 46 miles upstream. Some factories trade on the lower part of the river, and there is a customs house inside the mouth. The Kouilou is known in its middle course as the Niari and hence is often called the Niari-Kouilou. The lower river is sometimes in flood from November to May.

A shelving beach, off which lies a bank, leads from the river Kouilou to the end of Loango bay, at Pointe Indienne (17 miles). The town of Loango was once the capital of a kingdom and recently a French headquarters, but is now a trading settlement, containing factories, bungalows, telegraph office, and Roman Catholic mission. It is connected with Brazzaville by motor road. Loango is also on the coastal motor road between Madingo and Pointe Noire (133 miles). Steamers must anchor about 3 miles off the shore. Anchorage is good, apart from squalls and the swell caused by the long rollers. Surf-boats are necessary for landing. The local natives, who belong to the Bavili (or Loango) tribe, have supplied many carriers and factory labourers, and a number of mission-trained boys become domestic servants.

Pointe Noire bay, with banks, heavy rollers, and factories, lies between Pointe Indienne and Pointe Noire (9 miles south of Pointe Indienne). Pointe Noire is the terminus of the Congo-Océan Railway (318 miles) from Brazzaville, which circumvents the rapids of the Congo. The object has been to make a deep-sea harbour, consisting of an outer breakwater, inner quay, and mole. The outer breakwater has been completed; the inner quay has been partly completed; and the mole has been started. Rollers break inside the bay, but there is good anchorage. Pointe Noire is the headquarters of an Administrator (*chef de département*) and has a landing-ground, petrol store,

telegraph, wireless, cables, and, in peace-time, a seaplane service to Dakar and steamers to Europe. It is connected, on the north, with Loango, Kayes, and Madingo by coastal motor road, and, on the south, with Portuguese Cabinda and with Banana and Boma, on the Congo. A motor road between Pointe Noire and Brazzaville has now been completed.

A narrow beach, $5\frac{1}{2}$ miles long, topped by a 40-foot ridge, leads to Fausse Pointe Noire. Seven miles farther south is the mouth of the Malonda lagoon, or river Malonda, and $3\frac{1}{2}$ miles beyond there is a factory, and some anchorage but much swell and surf. Another 3 or 4 miles bring one to the river Massabé, the joint mouth of two rivers and the international boundary with Portuguese Cabinda. Near this is a factory and possible anchorage, but the river mouth shoals to $1\frac{1}{2}$ feet and landing on the beach must be by surf-boat.

10. *Cabinda to Congo* (Fig. 42)

The coast of Cabinda extends for 52 miles from the Massabé river to Point N'gelo. The first nine miles are occupied by a series of hills, 200-300 feet high, situated about half a mile from the sea. Eleven and a half miles farther south, red cliffs show up and forest disappears. In another 14 miles, Cabinda bay presents high cliffs and hills. The country after that is fertile and populous. From the international boundary between Cabinda and Belgian Congo to $22\frac{1}{2}$ miles north of Banana, thick swamps are met with. Farther south the coast is edged with cliffs for $15\frac{1}{2}$ miles. The remaining 7 miles, southwards to Banana, consist of a sandspit, with mangrove swamps behind. A great part of the first 30 miles of the Belgian bank of the Congo, inland from Banana, is thick forest, with occasional swamps which are often filled with papyrus. There are, however, places where a landing could be made.

The chief Portuguese settlements are Landana and Cabinda. The former is a large centre of trade and has Portuguese, French, and Dutch factories, as well as a residency. Anchorage may be found but landing is dangerous.

Cabinda has factories (including British), residency, telegraph, and wireless. It has also a civil landing-ground, situated at sea-level in lat. $05^{\circ} 35' S.$, long. $12^{\circ} 12' 30'' E.$, $1\frac{3}{4}$ miles south of Cabinda and 65 miles west-north-west of Boma. This ground is 765 yards long and 440 yards wide and has a firm sandy surface. There is anchorage off Point Tafe, at the south end of Cabinda bay. Cabinda and

Landana are on the motor road from Pointe Noire, with connexions to Banana and Boma.

The north bank of the Congo has two Belgian ports—Banana (Banane) situated at Banana point (which has no bananas), and Boma, 57 miles from the sea.

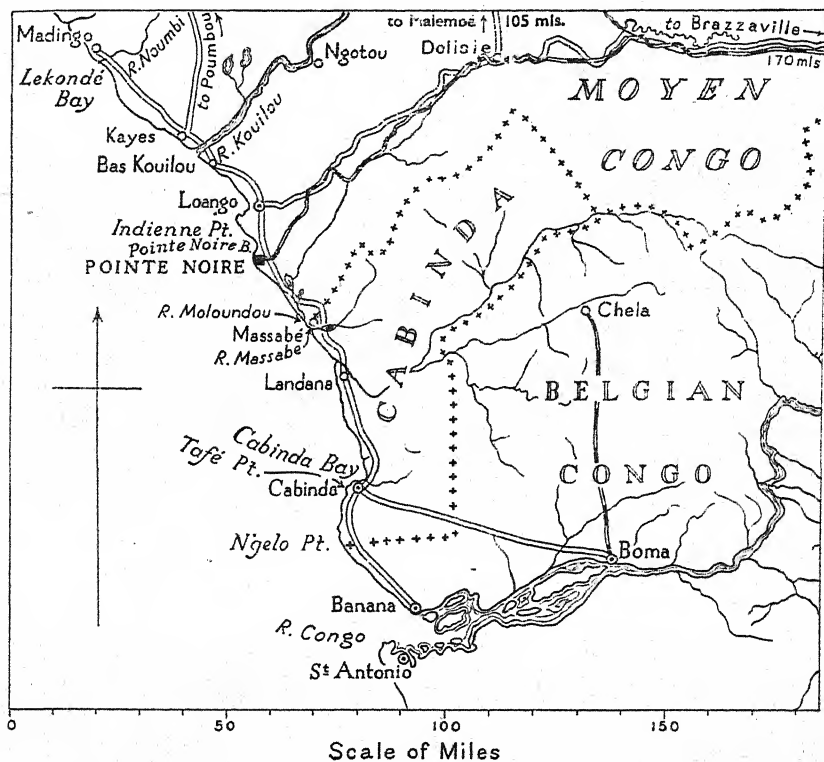


FIG. 42

Banana has a cable station, wireless station, telegraph, telephone (to Boma), and a seaplane alighting area in the creek to the east of the spit, but there are no facilities for repairs to seaplanes. The local hotel is owned by Portuguese: the accommodation is poor.

Boma is the headquarters of a district and of a *territoire* and has a floating dock, slip, piers, a wharf, and an emergency alighting area in the river Congo, for use in the most extreme urgency only. There are no facilities for repairs to seaplanes and no wireless telegraph, but there is a land-line to Leopoldville, Banana, and Matadi. The town

has a post, telegraph, and telephone office, customs, European and native hospitals, banks, and missions. Accommodation may be found at a second-rate Belgian hotel, and cars are available. Boma is the terminus of a single-line, narrow-gauge railway which runs northward to Tchéla near the international frontier between Belgian Congo and Portuguese Cabinda, and it is connected by road with Cabinda. Six miles north-west of Boma, as the crow flies, and $8\frac{1}{2}$ miles by a motorable road, is the aerodrome of Boma-Lokandu. There is an air route between Boma and Leopoldville, with a chain of landing-grounds, and, from Leopoldville, an air route follows up the Congo to Coquilhatville (near the junction of the Congo and the Ubangi), and another route goes up the Ubangi to the Belgian town of Libenge. There are also air routes through Belgian Congo.

CHAPTER IV

CLIMATE

Temperatures are given in degrees Fahrenheit. Rainfall is given in inches.

IN a country whose size is indicated in Fig. 42 a great variety of climate is to be expected—a variety that is increased by differences in altitude. For, from the coastal plains, much of the centre and south rises to a plateau over 1,500 feet above sea-level, while the Ngaoundéré plateau, in central Cameroons, rises above 3,000 feet, and near Foubam heights of over 5,000 feet are common.

Unfortunately there is a paucity of meteorological data; records were often intermittent and short-lived, and those that do exist are almost always wanting in some respect. Any figures, therefore, quoted in the following pages must be accepted with reserve, and conditions in any area may be found to be far removed from those given as typical.

Broadly speaking, the climate of any place in French Equatorial Africa depends upon three main considerations: upon its latitude, its altitude, and its distance from the sea. Based upon these facts, the country can be divided into four main regions, each with subdivisions:

The Desert (latitude $23\frac{1}{2}^{\circ}$ N.— 15° N.).

The Tropical (latitude 15° N.— 5° N.).

The Equatorial (latitude 5° N.— 5° S.).

The Coastal Lowlands.

Owing to the fact that the axis of the earth is tilted at a constant angle to the plane in which it revolves round the sun, there is an apparent movement of the sun northwards and southwards from the equator to the tropics through the year. It is this apparent movement (Fig. 44) that is the main feature of the climate of French Equatorial Africa, for a belt of low pressure, rain, cloud, and high humidity follows the sun, reaching a maximum extension north in July, and the surface winds on either side of this equatorial low-pressure belt alternately recede and advance as it swings north and south. There are no records of the vertical distribution of winds, but the 'dry wind' of Fig. 45, which is the harmattan, is still blowing above the moisture-laden air (as in West Africa) even during the months when it is no longer felt at the surface. Above them again is the westerly anti-trade current.

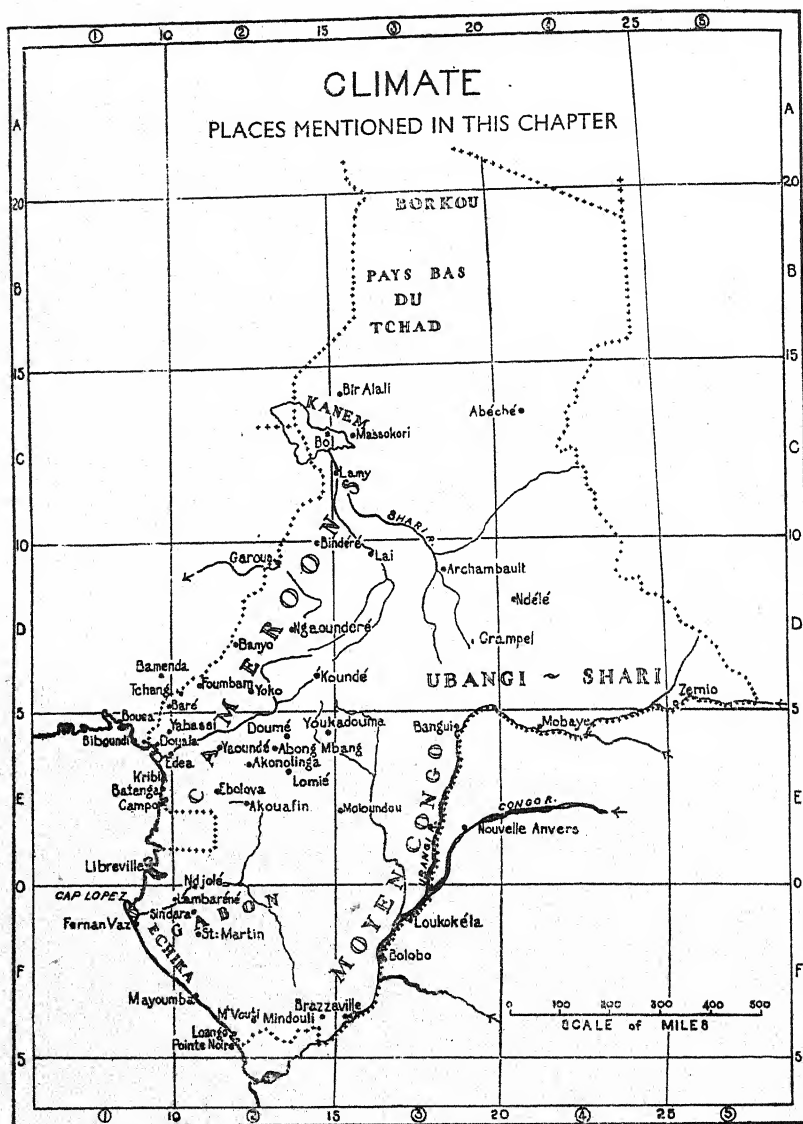


FIG. 43

Over the *Desert Region* the sun is overhead once a year, in June. At that time of year the rain belt is at its maximum extension northwards, and from June to August light and very variable rain

THE APPARENT PATH of the SUN

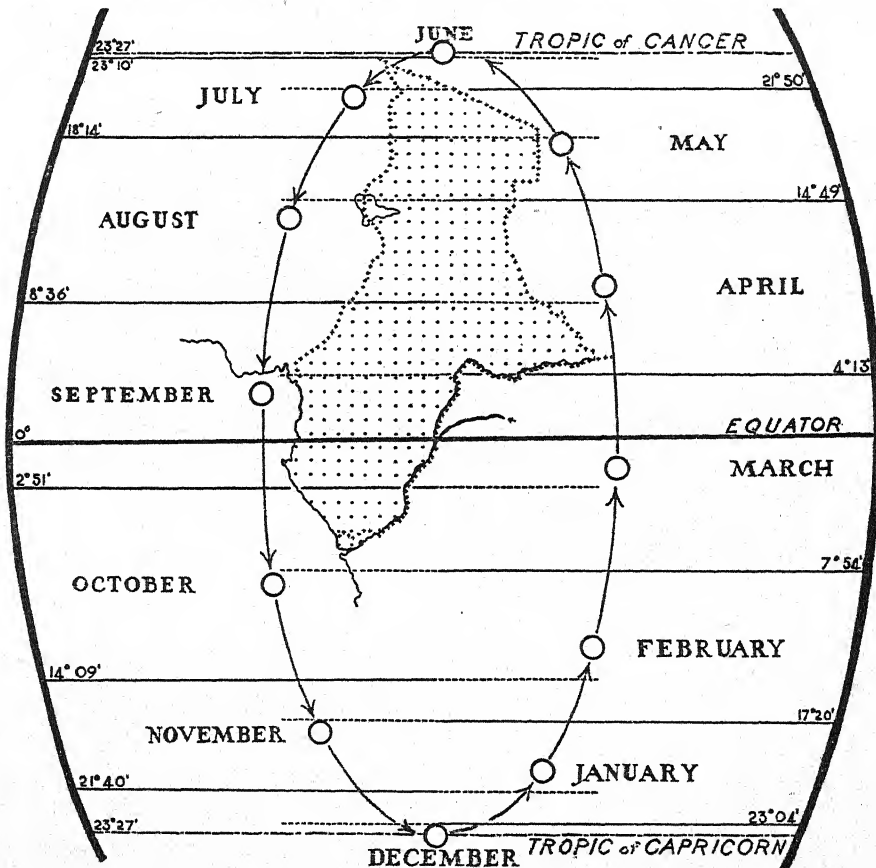


FIG. 44

may fall, with a consequent rise in humidity and slight fall in temperature; but for the whole of the rest of the year this zone is swept by the north-east harmattan, hot and completely dry: no rain falls, sandstorms are frequent, and extremes of temperature are the result of the dry air, which allows both intense insolation by day and pronounced radiation at night.

In the *Tropical Region* there is the same alternation between dry and wet conditions, for, though the climate of the northern half approximates to that of the desert, and that of the southern half to equatorial conditions, the whole of this part of French Equatorial Africa has these two distinct seasons: a dry period from October to April, with a large diurnal range of temperature, low humidity, and north-east winds prevalent; and a wet season from April to October, with lower temperatures, due to the rain (Fig. 47), smaller diurnal range of temperature, higher humidity, and less regular winds. The total of rain at any station in the area is not much less than that of places in the Equatorial Region but 70-80 per cent. of it comes in the one season.

The *Equatorial Region* is characterized by the uniformity of the climatic conditions. Pressure and wind variations are noticeable by their absence. Temperature and humidity are remarkable, not so much for any extraordinary extremes, as for their consistency, and it is this fact that, with the high rainfall, makes the climate so enervating and unhealthy for Europeans. Although the rainfall is heavy, there are two main wet periods, just after the sun has been overhead, i.e. in April and October, separated by two periods when there is rather less rain, during January and July (Fig. 47).

The climate of the *coastal lowlands* is, broadly, that described above, but the influence of two other factors is imposed—the sea and land winds, and the sea currents, particularly the north-flowing cool Benguela current (Fig. 49).

THE DESERT REGION

(Lat. $23\frac{1}{2}^{\circ}$ N.— 15° N.)

Northern Half of the Territory of Chad

Meteorological stations are non-existent, and the only facts and figures known are from expeditions, such as those of Schirmer and Colonel Tilho, which were of short duration, and whose records are very incomplete.

From September to May the area is continuously under the influence of the north-east harmattan, which rarely exceeds 40 m.p.h., and is active to a height of about 10,000 feet. In Tibesti winds are irregular and local.

For 1909, in Bodélé, the Tilho mission recorded pressure variations of only 9.6 mb. (0.28 in.) between a December maximum of 981.6 mb. (28.95 in.), and an April minimum of 972.0 mb. (28.67 in.).

At this season there is no precipitation, and the mean temperatures

are high. Though they are between 80° and 85° , they are, however, quite supportable by Europeans, because the humidity is low: in 1908, in Bodélé, that recorded for a short time was only 31 per cent. Another factor which helps to make life easier for the European is the great diurnal range of temperature, for, thanks to the lack of moisture in the air, insolation by day and radiation by night are both intense. Though air temperatures up to 122° have been recorded by day, they occasionally fall even as low as 32° at night. On the heights of the Tibesti mountains a fall to 10° has been recorded.

The following table gives some idea of temperature conditions in, and around, these mountains.

	Height in feet	3 February 1934		25 May 1934	
		Max.	Min.	Max.	Min.
Bardaï	3,215	89.6	41.0	87.8	66.2
Aozou	2,887	77.0	44.6	78.8	64.4
Wour	2,395	82.4	53.6	89.6	73.4
Zouar	2,378	96.8	39.2	111.2	73.4
Largeau (Faya) . .	705	88.1	56.8	118.4	79.7

The greatest danger and discomfort comes from dust and sand storms which are especially prevalent in June and July. These blow up quite suddenly and blot out the sun with a choking yellow mass of fine dust, which penetrates everything and everywhere.

Near Largeau these storms begin early in the morning, between five and ten, and cease, usually, between two and six in the afternoon. Sometimes violent storms will last overnight or even for two or three days. Their aftermath is a dust haze extending to 10,000 feet and limiting visibility to about half a mile. Otherwise visibility is excellent at this time of year, whilst cloud cover rarely exceeds one- or two-tenths.

During May and into June, as the sun moves farther north, the north-east winds gradually give way to others much less regular (though in general they blow from the south), while the relative humidity increases (46 per cent. in June 1908 in Bodélé).

In July and August there are slight and quite irregular rains—even on occasion a sudden downpour, short and sharp, which will cause floods temporarily in the ouadis, and, with this rain, the temperature decreases slightly.

The higher parts of the Tibesti mountains at this season have been observed wreathed in dense cloud, and precipitation is probably somewhat larger, though no records exist. During these months

visibility is temporarily reduced by dust storms, but is excellent at other times. Cloud cover increases to a maximum of five-tenths, but there is considerable diurnal variation: a clear morning may turn into an overcast evening as prelude to a storm; when the rains are well established in the southern half, low cloud is likely to occur during the early morning.

As in other desert regions, mirages are frequent.

Generalized diagram, showing Mean Conditions

<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>
NE. winds.					Winds irregular Mainly south			NE. winds.			
Temperatures high					Temperatures lower			Temperatures high			
Humidity low					Humidity increasing			Humidity low			
Precipitation nil					Some slight rain			Precipitation nil			

THE TROPICAL REGION

(Lat. 15° N.-5° N.)

South of Chad, Ubangi-Shari, north of Cameroons

N.B. In most cases records were obtained over a period of one year only.

This area has a definite dry season alternating with a marked period of rain.

Dry season: October or November to March or April. Very little or no rain; lower humidity; high temperatures and large diurnal range of temperature.

Wet season: March or April to October or November. Heavier and more regular rain with maximum in July or August; higher relative humidity; lower temperatures (Fig. 47) and smaller daily range of temperature.

The northern part of the area has a shorter wet season and a correspondingly longer dry season, and all the climatic features become increasingly like those of the desert to the north, while in the southern half they become more like those of the equatorial region, with a longer wet season and heavier rain, until the climate merges into the typical two-season rainfall régime of that region (see Fig. 48).

Pressure, Winds, and Cloud

Here again records are very few and largely intermittent. The figures for Lamy given in Table VI can be taken as representative of the northern part, and suggest that diurnal and annual variations of pressure are slight.

For conditions farther south, the minimum pressure at Ndélé is given as occurring from April to August, and the maximum in September and October. At Archambault, with a mean of 972.3 mb. (28.7 in.) in 1900, and at Crampel, with a mean of 969.5 mb. (28.6 in.), the maximum amplitude of barometric variation in one day was about 9.3 mb. (0.28 in.) and only 5.3 mb. (0.16 in.) for any hour throughout the year—a constancy which makes aneroid barometer readings very reliable.

During the dry season the harmattan is dominant as the surface wind and up to about 10,000 feet, its influence being felt chiefly in the northern half of the area. Its general direction is north-east, but the intensity and periodicity of the winds seem to be very variable, due to local conditions: for example, one year in Kanem from October to April a north-east wind was noted as regular from 0700 to 1800 hours each day, while at Ndélé, 500 miles away, in February, east winds were most frequent and especially strong at night with a decrease towards midday.

Normal cloud cover at this season is from one- to two-tenths, and visibility is good up to 12 miles most of the time. It is, however, reduced by fogs, which are frequent in the early morning and near water when the wind dies down, and by sandstorms and dust haze, which are more intense in the north and more common at the change of season. This haze may often rise to 5,000 feet and limit visibility to two or three miles. The Tilho mission (of 1909) reported that in March and April in Chad there was so much dust and sand in suspension in the air that stellar observations were impossible. And Le Commandant Dageaux recorded that at the beginning of the dry season the sun appeared as an enormous red disc unable to pierce the haze of dust that covered the whole sky. Visibility is also reduced in March and April by the smoke of the bush fires which are a normal feature of native agriculture.

Through February and March progressively from south to north the dry season gradually gives way to the wet. Though the harmattan is still dominant at higher levels, on the surface it retreats northwards (see Fig. 45) giving way to less regular winds, which, however, blow

most frequently from the south-west. The general atmospheric instability at this season causes tornadoes (pp. 99, 100), and small whirlwinds commonly known as 'dust-devils', which move from west

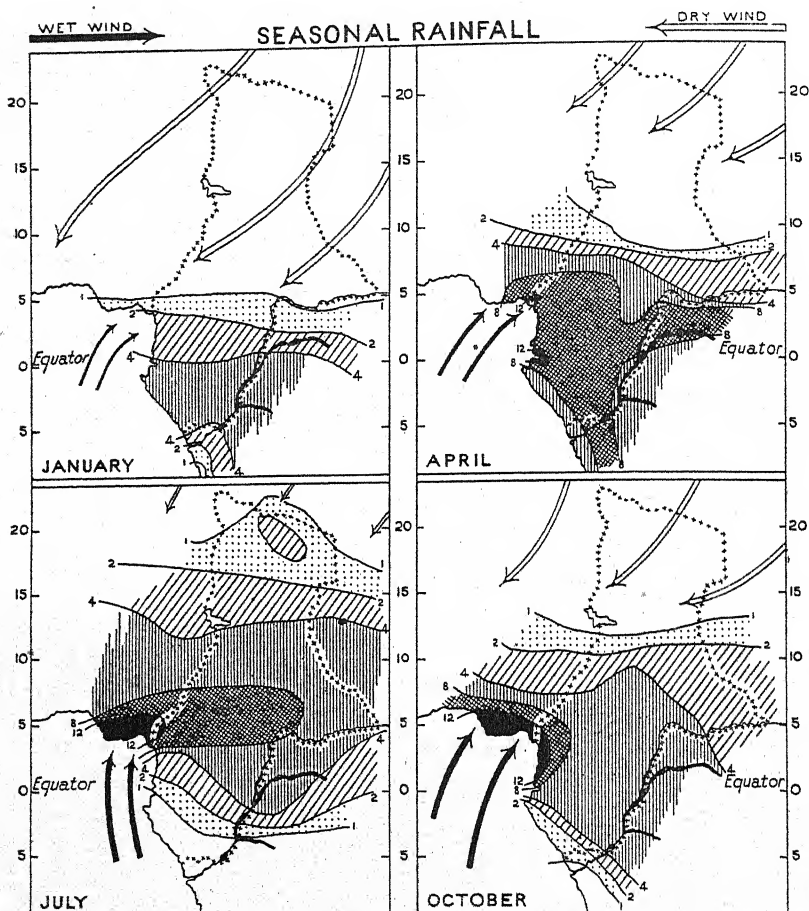


FIG. 45. Isohyets in inches

to east in the form of inverted cones, short-lived and violent, 12 to 16 feet in diameter, with an anti-clockwise air circulation.

As the wet season develops the south-west winds become dominant at the surface, the cloud cover increases to its maximum of three- to six-tenths, and the visibility improves, being excellent then up to 20 miles, except during actual rain.

Temperature

In the dry season the sun is at its most oblique and is overhead south of the equator. Although on this score insolation is less, higher day (and lower night) temperatures are encouraged by the absence of the cloud and rain which follow the sun.

In the northern half the figures from Lamy suggest

Absolute maxima	from 100° to 120°
Mean monthly maxima	„ 90° „ 100°
Mean monthly minima	„ 50° „ 60°
Absolute minima	„ 30° „ 40°

The thermometer frequently reads 50° at six a.m. and 100° in the shade at noon.

Archambault is typical of the southern half. Complete records, though covering only a year, are given in Table II, and show the two maxima to be much the same and the two minima to be rather higher (see Fig. 47). The data for Lamy, Lai, and Crampel agree in showing the greatest extremes in the period January to April.

For the wet season the records are again those from Lamy and Archambault. The maxima, lower than in the dry season, will be seen to conform to the rainfall régime, decreasing as the rain increases, while the minima, rather higher than in the dry season, decrease steadily through the period. The figures for Lai show this same decrease.

Humidity

Records are almost non-existent.

In the Chad area figures are available for Lamy only. Humidity decreases from December to March, and then rises with increasing temperatures through April to a maximum in August. (Table IV, p. 104.)

At Archambault the following hygrometer readings were recorded in 1903-4:

10-17 January	less than 60 all the time
January	variations from 98 to 5
April	„ „ 83 „ 3
September	„ „ 80 „ 57

which indicate a large seasonal variation in humidity; a lower level in the dry, and higher level in the wet season; greater diurnal variations in the dry season.

At Crampel there is a rise in humidity from January to the

maximum of 84.9 per cent. in May and 83.7 per cent. in June, and then a fall to January again.

It is this low average of the relative humidity and large diurnal range that make the region healthy for Europeans in spite of the high temperatures.

Rainfall

The diagram below, compiled from such few data as there are, shows that the northern half has a short wet season of 3 or 4 months. Three-quarters of the small rainfall is during July and August, and there are comparatively few rain days. In the southern half the rainy season covers 7 or 8 months, rainfall is heavier and rain days more numerous. It need hardly be added that individual years may differ widely from an average based on so few measurements and so short a period. At Fort Lamé 49 inches and 68 rain days have been recorded and so have 59 inches and 118 rain days at Fort Crampel. Throughout most of the region December, January, and February are almost completely dry. On the mountains along the Anglo-Egyptian Sudan frontier rainfall is probably heavier than Fig. 46 suggests.

Generalized Rainfall Diagram

Station	Mean No. days rain	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total rain in in.
N. HALF														
Bir Alali	12	—	—	—	—	—	—	—	—	—	—	—	—	—
Kanem	—	—	—	—	—	—	—	←	→	—	—	—	—	—
Bol	—	—	—	—	—	—	—	—	—	—	—	—	—	7
N. Cameroons	—	—	—	—	—	—	←	→	—	—	—	—	—	—
Massakori	51	—	—	—	—	—	←	→	—	—	—	—	—	—
Abéché	40	—	—	—	←	→	—	—	—	—	—	—	—	—
Lamé	58	—	—	—	←	→	—	—	—	—	—	—	—	25
S. HALF														
Garoua	76	—	—	—	←	→	—	—	—	—	—	—	—	30
Lai	88	—	—	←	→	—	—	—	—	—	—	—	—	56
Archambault	—	—	—	←	→	—	—	—	—	—	—	—	—	42
Ndélé	—	—	—	—	←	→	—	—	—	—	—	—	—	—
Foumbam	148	—	—	←	→	—	—	—	—	—	—	—	—	70
Koundé	—	—	—	←	→	—	—	—	—	—	—	—	—	—
Crampel	87	—	—	←	→	—	—	—	—	—	—	—	—	51
Ngaoundéré	167	—	—	←	→	—	—	—	—	—	—	—	—	76
Bangui	111	—	←	→	—	—	—	—	—	—	—	—	—	69

Length of wet season



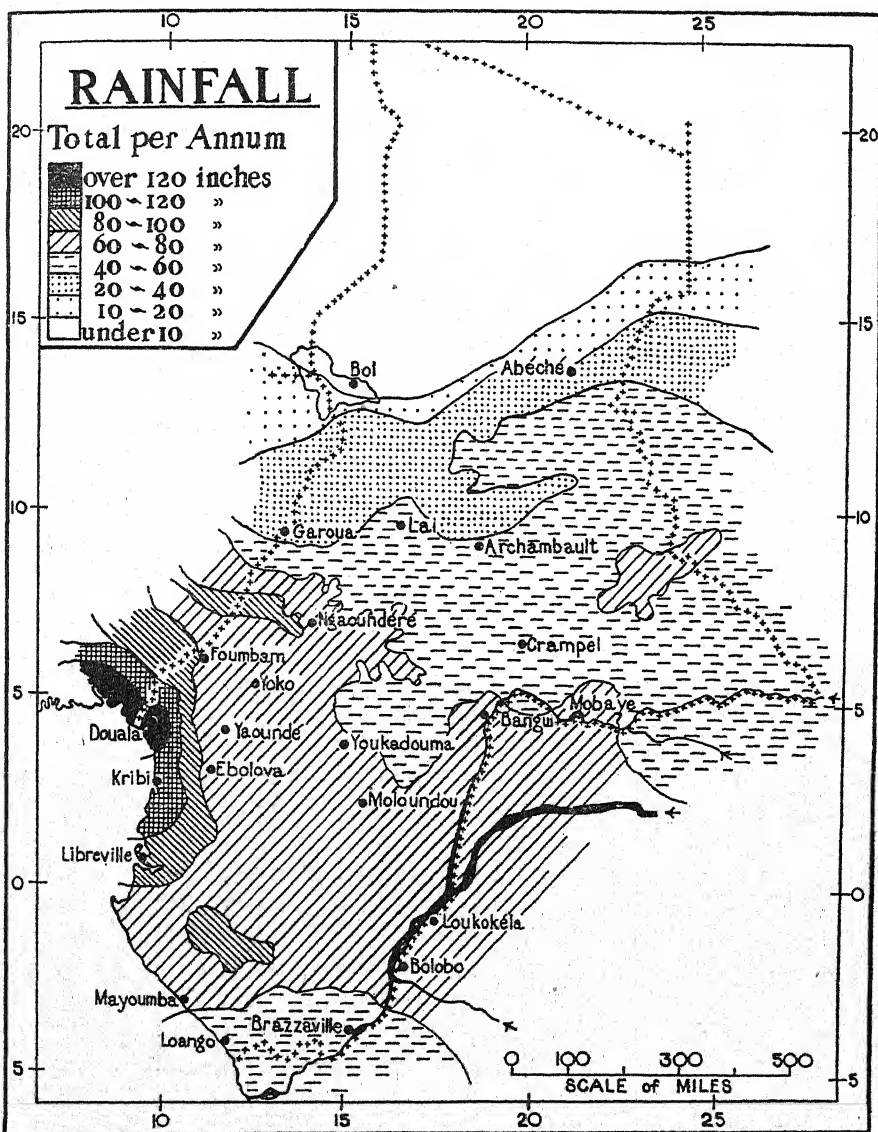


FIG. 46

The higher plateau round Ngaoundéré enjoys a much more temperate climate, because of its height, and the minimum temperature often falls to 45° , giving a range of 30° in the cool season; sleet has also been recorded (in January 1892), though it is not frequent. There is here too a much greater diurnal range of temperature, and dews are frequent, though they do not last after 0700 hours.

THE EQUATORIAL REGION

(Lat. 5° N. - 5° S.)

Southern Cameroons, Moyen Congo, Gabon

The chief characteristic of this part of French Equatorial Africa, in contrast to the others, is the absence of any effective seasonal wind, the lack of any well-defined dry season, and the consistently high humidity and temperature.

The sun is twice each year overhead and never far from the zenith at midday. Naturally, therefore, the temperatures are continually high; and when it is further remembered that there is here a huge area covered with dense forest and abounding in rivers and swamps, the intense evaporation and resulting high humidity and precipitation are reasonable too. It is indeed this consistency of the temperatures and humidity, rather than any spectacularly high figures, that makes the area so unhealthy and enervating for Europeans.

The tables for Yaoundé (the Cameroons) and Nouvelle Anvers (Belgian Congo) may be taken as typical of the northern half, and those for Brazzaville (French Equatorial Africa) and Bolobo (Belgian Congo) of the southern half of this region.

The mean of the daily maximum temperatures for the whole area varies between 90° and 80° , with an average of about 85° ; the mean of the daily minimum temperatures from 75° to 65° , with an average of approximately 70° . This gives a range of about 20° to 15° , but the mean monthly temperatures only vary by about 6° . Rainfall is in the neighbourhood of 60 inches a year.

It must be remembered that everywhere higher stations have lower temperatures, the average decrease being 1° for each 300 feet; and that the season in which there is a rise or fall in the temperatures and precipitation varies in different localities, as do the local features of the climate which make so much difference to life in the area.

At the beginning and end of the wet seasons tornadoes with winds

TEMPERATURE AND RAINFALL GRAPHS

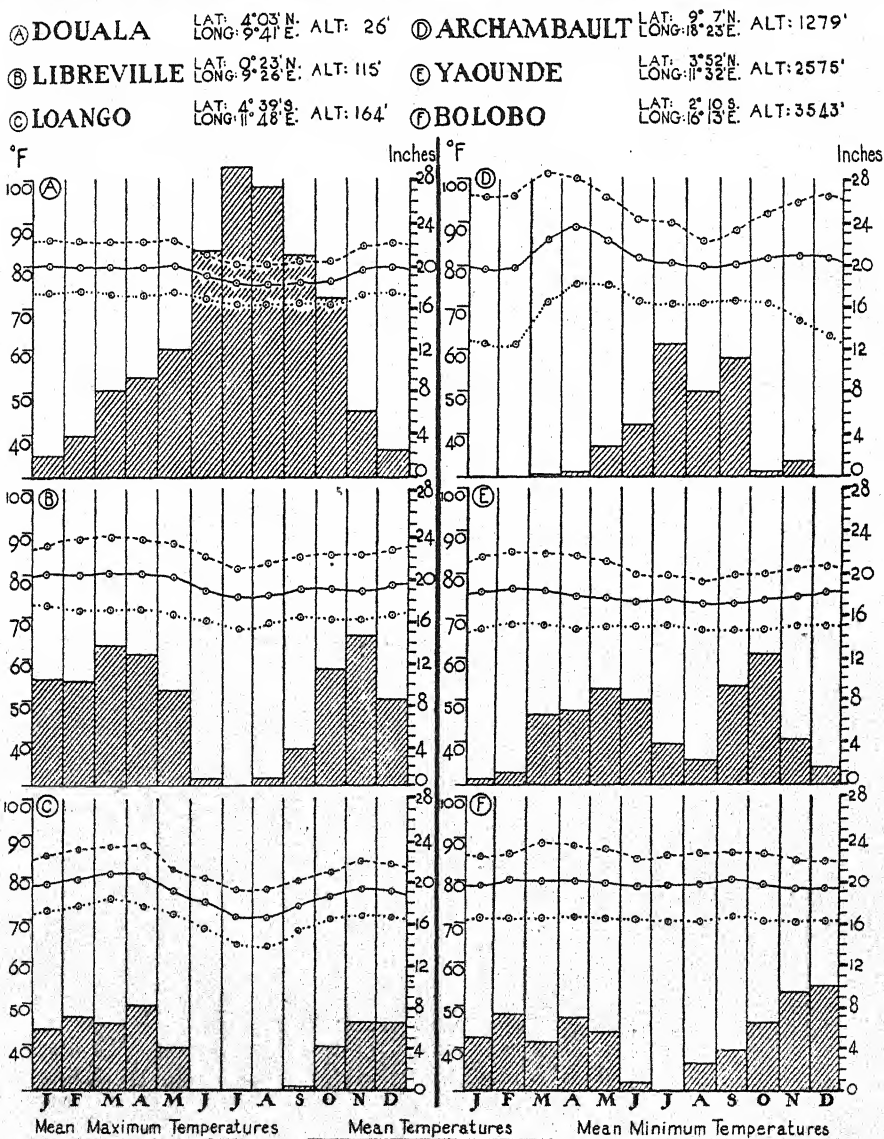


FIG. 47

up to 50 m.p.h. are experienced anywhere in the area, accompanied by squalls, violent thunder and lightning, and intense electrical disturbance. They blow up from the east or south-east, usually in the afternoon (*see* pp. 99, 100).

In the northern half of this region, of which Yaoundé, Lomié, Mobaye, Zemio, and Nouvelle Anvers are typical, there is a tendency to higher maximum temperatures and greater diurnal variation during the drier seasons, but the thermal conditions are not so important (except in the respect already stated) as are the seasons of the wetter periods, and the humidity, which remains consistently high—in the region of 70–80 per cent.

In this part it can be seen from the diagram below that the year can be divided up into four seasons, with the rains coming just after the sun has been overhead, and heaviest when the sun is on its apparent southward course.

Seasons (Northern Half)

<i>Stations</i>	<i>Greater dry</i>	<i>Lesser wet</i>	<i>Lesser dry</i>	<i>Greater wet</i>
Yaoundé . .	Dec.–Feb.	Mar.–May	June–Aug.	Sept.–Nov.
Mobaye . .	Dec.–Mar.	Mar.–June	July	Aug.–Nov.
Zemio . .	Nov.–Mar.	Mar. and Apr.	Apr.–July	July–Oct.
Youkadouma .	Dec.–Feb.	Mar.–June	July and Aug.	Sept.–Nov.
Nouvelle Anvers .	Nov.*–Mar.	Apr. and May	June	July–Oct.
Ubangi R. . .	Dec.–Feb.	Mar.–June	July and Aug.	Sept.–Nov.
Lomié . .	Dec.–Feb.	Mar.–May	June–Aug.	Sept.–Nov.

* Rather higher rainfall in Dec.

In the southern half temperature figures, available for Bolobo and Brazzaville, indicate rises when the sun is overhead, and falls when the following rains occur, though the range of these mean monthly temperatures is only 2°, and the average diurnal range of temperature is only 16°.

Seasons (Southern Half)

<i>Stations</i>	<i>Lesser dry</i>	<i>Lesser wet</i>	<i>Greater dry</i>	<i>Greater wet</i>
Brazzaville	Jan. and Feb. (Mouanga)	Mar.–May (Ndolo)	June–Sept. (Kisiou)	Oct.–Dec. (Mbangala)
Rolobo (B.C.)	Jan.–Mar.	Apr. and May	June–Sept.	Oct.–Dec.
Loukokéla (B.C.)	Jan. and Feb.	Mar.–May	June–Sept.	Oct.–Dec.
<i>Humidity</i>	Average 81·5%	Average 80·7%	Low 74·5%	High 82·9%

The names in brackets are the Bakongo names for the seasons.

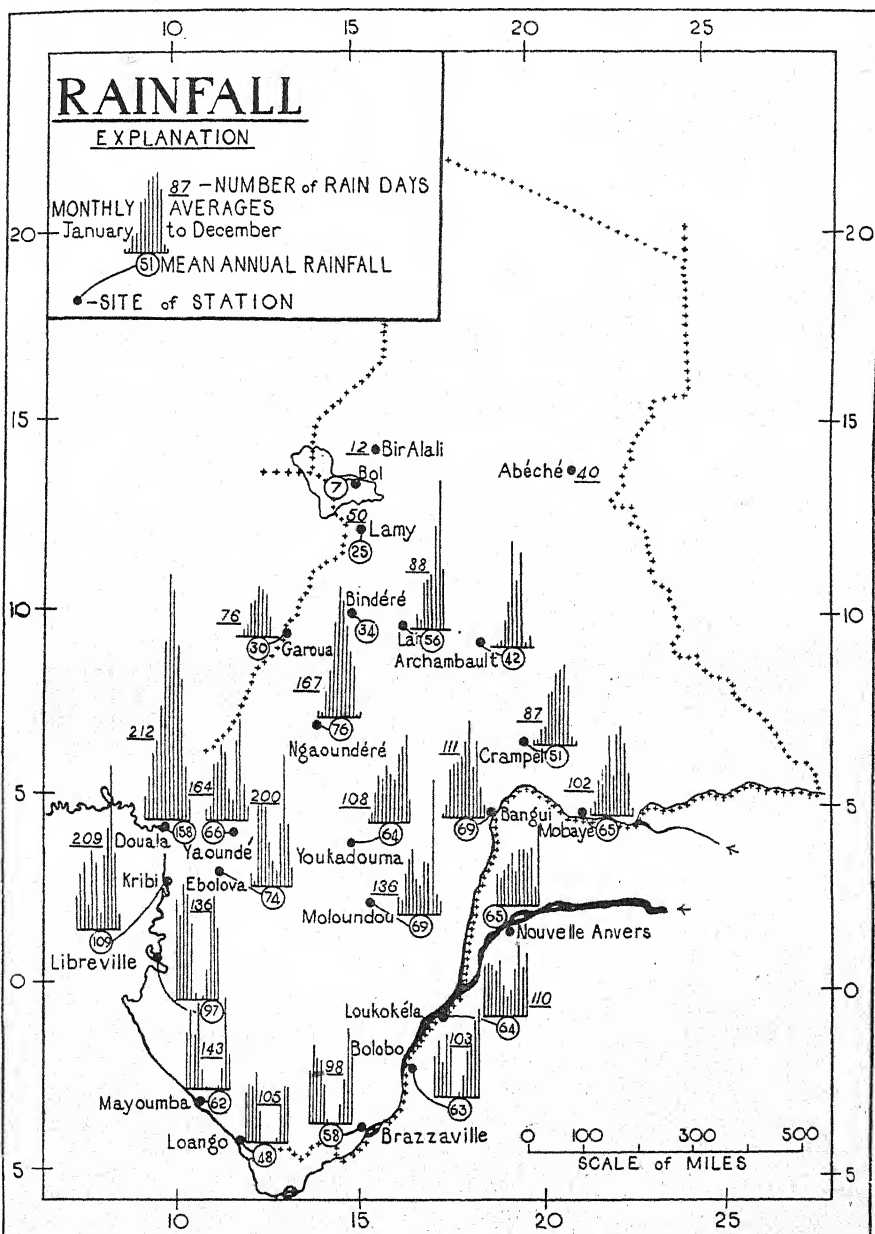


FIG. 48

Thus again it is the seasonal distribution of rain which is the more important factor, and the changes in humidity that go with it, that is, the same double wet season is featured here, but with a slightly different emphasis.

In contrast with the other parts of French Equatorial Africa, seasonal winds are non-existent, though in the south and on the Lower Congo south-west winds predominate, and in different areas local winds are important—e.g. the south-east winds during the greater wet season at Zemio; the south-westerly winds blowing on the Lower Congo, which make the Couloir quite choppy, and help to temper the midday heat; and the short-lived but regular gust that is felt up the Lower Congo from the west or north-west for about 10–30 minutes after sunset each evening. Rather, the most marked feature is the belt of calm air which follows the sun with low pressure, high temperatures, and great evaporation and cloudiness.

Though during the drier times of the year the sky may remain grey and overcast all day and night, and in the wetter seasons rain must be expected at any hour in the twenty-four and even all day, there is on most days a fairly constant régime: the early morning is overcast and foggy, especially in the valleys, from the time of the lowest temperatures at 0500 or 0600 hours until 0800 or 0900 hours. By that time the sky is clear, and then clouds gradually gather until about 1500 hours, when there is heavy rain. More heavy rain falls just after dusk, but there may be a clear period between these two falls, in the early evening. The nights are usually clear, with the temperature gradually falling to 0500 or 0600 hours.

Rain rarely lasts for more than 12 hours consecutively, and usually only for 3 or 4 hours, but precipitation, frequently accompanied by thunder and lightning, is heavy and violent, and may even reach 0.04 inch per minute, and from 3 to 4 inches per day. Hailstorms occur, but infrequently and at irregular intervals. The hailstones are very large, and destructive unless precautions are taken.

THE COASTAL LOWLANDS

In the coastal region the climate is everywhere influenced, as might be expected, not only by the sun position but also by land- and sea-breezes, and by the sea currents.

There are, however, four marked divisions of this coastal area:

- (1) the north, i.e. south-west Cameroons;
- (2) the north centre, from Kribi to Cap Lopez;
- (3) the south centre, from Cap Lopez to Mayoumba;
- (4) the extreme south, near Loango.

(1) With maximum mean diurnal variation between 90° and 67° , the mean monthly temperatures of the north vary between 80° and 75° , and are lowest in the wet season (*see* Fig. 47). The diurnal range of temperature is 12° or 13° in the dry season, and 7° or 8° in the wet: the cloudiness similarly varies between six-tenths and nine-tenths.

The very pronounced wet season from May to October is the chief feature of the climate, and over the whole area there is an extraordinary precipitation—Douala has an average of just over 13 feet, while roughly 34 feet has been recorded at Biboundi, on the seaward slopes of the Cameroon mountain.

The average humidity is 88 per cent., varying from 85 per cent. in the dry season to 91 per cent. in the wet.

Tornadoes occur, as on the plateau inland, at the beginning and end of the rains, and dense fogs are frequent, especially from midnight to 1000 hours in November, December, and January after the rains. These fogs and a stifling haze which may last all day are due to the north-east harmattan, whose influence is just felt (*see* Fig. 45).

To summarize, then, the extreme north of the coastal region has constantly high temperatures and humidity with a heavy rainfall, at its highest in June, July, and August. Though December to February is a comparatively dry period, it is not surprising that this is one of the most unhealthy places in the world for Europeans.

(2) This steamy 'hot-house' type of climate continues over the north central zone along the coast to Cap Lopez, as the statistics for Libreville and Port Gentil will show. The mean monthly maxima and minima do not show so great a variation, but the same small range is apparent. The coolest season and lowest humidity, however, coincide with the dry period in June, and the rainfall régime is also quite different from that of the northern part of the coast. The rainfall figures (as shown in Table III) for Edéa, Ebolova, Kribi, Grand Batanga, and Campo also confirm the return to typical equatorial conditions of two seasons wet and two seasons drier: heavy rain just after the sun has been overhead, heaviest in October, and a marked dry period from June to August, which gives Europeans

a chance of recovery from the exhausting conditions inseparable from the steamy heat of the wet seasons. Once again the humidity is high (85 per cent. as an average), and there is a mean daily range of temperature of only 11° . Barometric pressure, cloudiness, and humidity are all at their highest in the morning. Brief but very violent thunderstorms are common with the rain. It is in this part of the coast that the sea- and land-breezes are most noticeable; especially in the dry seasons, a strong on-shore wind rises towards 1400 or 1500 hours and lasts until 2100 hours. Calm follows until midnight, when a land-breeze rises, increasing in intensity up to day-break, then diminishing and fading out about 0800 or 0900 hours. In the wet season these winds are less strong and regular: the sea wind is very feeble and often does not rise until 2000 hours, and only holds for a very short while; the land-breeze may only blow from 0300 hours to 0500 or 0600 hours.

Diagram to show generalized Rainfall Régime on the Coast

Area and station	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Total rain-fall in in.
South-west Cameroons Douala	←-----→												159
North centre of coast Kribi	Lesser ←-----→		Lesser ←-----→				Greater ←-----→			Greater ←-----→			109
Libreville	Lesser ←-----→		Greater ←-----→				Greater ←-----→			Lesser ←-----→			97
	(Esep)		(Bikone)				(Oyun)			(Sogha)			
South centre of coast Mayoumba	←-----→		←-----→				←-----→			←-----→			62
Extreme south Loango	←-----→												48
<div> <div>Dry seasons</div> <div>Wet seasons</div> </div>													

Dry seasons
←-----→

Wet seasons
←-----→

The names in brackets are the Fang names for the seasons.

(3) Along the coast south of Cap Lopez there is the same seasonal régime, as the figures for Mayoumba show, but here the coast is under the influence of the northern end of the cool Benguela current, and there is a pronounced decrease in temperature and rainfall.

South-west and west winds predominate, and as they come from cooler sea to warmer land they are cooler, and their resulting smaller moisture-holding capacity is increased rather than decreased when they reach land.

(4) In the extreme south the rainfall figures for Loango, with an almost even monthly rainfall from November to April, indicate that this part of French Equatorial Africa is almost in the southern hemisphere tropical region—one wet season and one dry, similar in climate to Crampel and Foubam, though in opposite halves of the year. The variations in temperature, with the maxima in December,

WARM AND COLD CURRENTS

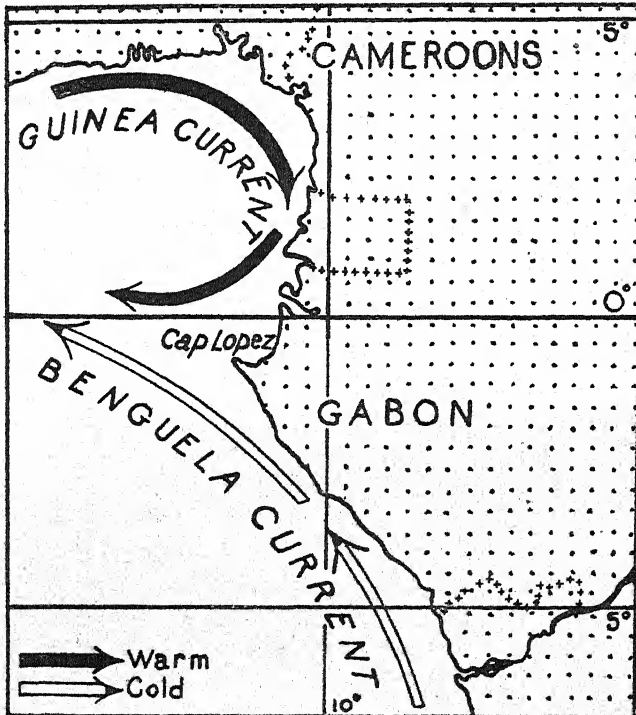


FIG. 49

January, and February, are also typical of this climate, but the Benguela current accounts for temperatures and rainfall much lower than the latitude would suggest.

Tornadoes are a feature again of the periods before and after the rains, and the humidity conforms once more to the wet and dry periods.

Tornadoes

Tornadoes occur over the whole territory from the equator to about 20° N. and from 20° E. to the coast. They are most frequent just before and after the wet season, being due to the conflict between

the harmattan blowing from east or north-east and the south-west winds. The latter are warmed by contact with ground heated during the day, and become potentially lighter than the harmattan which overlies them. In the months when the harmattan blows uninterruptedly at the surface, tornadoes are practically unknown: they are most frequent when the south-west winds, advancing or receding, form a relatively shallow layer, and they decrease again when these winds are deep and well-established.

Between the equator and $7\frac{1}{2}^{\circ}$ N. tornadoes are most frequent in April and May, with a secondary maximum in September and October. Farther north they occur, less frequently, at seasons which get closer together until, north of latitude 10° N., they unite in a single maximum from June to August. As tornadoes, even if frequent, occur quite irregularly, and grade downwards into ordinary tropical thunderstorms, no precise figures of their frequency are available, but at some places in the Cameroons as many as six or seven have been recorded in one month.

The tornado of French Equatorial Africa is short-lived, but very violent with gusts up to 60 m.p.h. It is not, however, so fierce as the summer tornadoes of the U.S.A., though its destructive power is greater in the open savanna where there is no thick tree growth (as there is in the forest) to break its force. It may occur at any time of day or night, and normally blows up from the east. The development of a typical tornado begins with a light west wind, the massing of heavy dark cumulo-nimbus, and thunder rumbling in the distance. This stage lasts for some hours, until the cloud mass rises into the harmattan and begins to travel westwards in its current. As the tornado approaches, the surface wind shifts suddenly to east or north-east and becomes very violent—river-boats are liable to be swamped if caught in open water, tents and stores to be blown over, and sand whirled up into a blinding, choking haze of dust. Torrential rain follows almost immediately, accompanied by severe thunder and lightning and a marked fall in temperature. In a short while the violent wind begins to moderate, but it continues strong generally for about an hour, after which its direction returns to west, the rain ceases and the sky clears. Once started, tornadoes may travel far with considerable speed: the time between their first appearance on the horizon and their onset varies from half an hour to five minutes. Land and water transport, therefore, cannot avoid their effects, but they cover a relatively small area, so that aircraft can escape them if warned of their approach.

I. Temperatures and Rainfall

Region	Station	TEMPERATURES				RAINFALL						
		No. of yrs.	Mean max.	Mean	Mean min.	No. of yrs.	Max.		Mean		Min.	
							In.	Days	In.	Days	In.	Days
Tropical	Northern half	Bol	—	—	—	7	9.7	—	7.0	—	1.7	—
		Lamy	5	99.7	84.2	67.7	9	49.1	68	25.2	50	12.0
		Bindère	—	—	—	—	4	35.9	—	34.4	56	26.3
		Garoua	—	—	—	—	7	52.6	104	29.5	76	23.0
		Lai	—	—	—	—	1	—	—	56.4	88	—
		Archambault	1	93.4	81.0	68.7	1	—	—	41.7	76	—
	Southern half	Ndélé	1	90.6	77.9	63.3	—	—	—	—	—	—
		Crampel	1	98.3	78.8	70.25	3	59.0	118	50.9	87	35.2
		Banyo	—	—	—	—	3	79.0	176	68.7	154	62.8
		Tchang	—	—	—	—	2	80.1	235	65.3	187	52.5
		Foumbam	—	—	—	—	9	—	—	71.3	148	—
		Yoko	—	—	—	—	15	70.6	159	53.6	117	49.0
Equatorial Interior	Ngaoundéré	3	83	71.5	60	4	—	—	75.9	167	—	
	Bangui	3	89	78.5	68	3	72.8	135	69.2	111	37.9	
	Mobaye	2	87.5	78.8	70.1	3	—	—	65.2	102	—	
	Doumé	—	—	—	—	4	78.4	162	61.2	140	54.75	
	Youkadouma	4	85	75	65	3	—	—	64.1	108	—	
	Abong Mbang	—	—	—	—	4	66.3	144	59.0	111	53.9	
	Akonolinga	—	—	—	—	3	62.9	140	60.9	130	57.1	
	Yaoundé	4	82	74.5	67	4	68.1	218	65.6	164	53.8	
	Lomié	—	—	—	—	10	77.3	206	58.7	173	56.5	
	Ebolova	—	—	—	—	12	79.0	234	74.0	200	59.84	
	Akouafim	—	—	—	—	3	—	—	62.2	101	—	
	Moloundou	—	—	—	—	10	93.0	191	68.7	136	46.6	
SW. Cameroons	(Nouvelle Anvers)	—	—	—	—	2	—	—	65.1	—	—	
	(Loukokéla)	—	—	—	—	12	—	—	63.9	110	—	
	(Bolofo)	1	86.9	79.2	71.5	4	—	—	62.8	103	—	
	Mindouli	—	—	—	—	—	—	—	50.4	—	—	
	Brazzaville	4	87.6	77.3	67.1	18	78.2	117	57.9	98	14.6	
	Baré	—	—	—	—	2	111.3	—	96.04	210	82.9	
	Yabassi	—	—	—	—	5	106.2	225	95.24	190	91.9	
	Douala	11	84	78	72	23	184.1	238	158.5	212	—	
	Edea	—	—	—	—	4	124.9	221	93.8	118	87.2	
	North of coast	Kribi	—	—	—	—	5	131.8	242	109.0	209	83.2
		Grand Batanga	—	—	—	—	2	—	—	128.1	—	—
		Campo	—	—	—	—	6	120.3	160	95.3	148	45.6
Libreville		11	86.1	78.7	71.2	11	127.4	188	97.2	136	63.5	
Centre of coast	Fernan Vaz	7	87.6	79.5	71.4	7	90.1	157	74.7	137	53.3	
	Lambaréné	—	88.5	71.0	79.7	—	—	—	—	—	—	
	Ndjolé	5	88.9	79.4	70.0	6	90.7	170	69.1	136	44.1	
	Sindara	—	—	—	—	2	—	—	80.64	161	—	
	St. Martin	1	85.8	78.2	70.7	2	—	—	94.3	156	—	
South of coast	Mayoumba	5	82.3	77.4	71.4	8	115.3	165	62.0	106	34.6	
	M'Vouti	—	—	—	—	2	58.8	—	58.54	—	56.7	
	Loango	7	83	77.5	72	7	—	—	48.1	105	—	
Pointe Noire	—	—	—	—	4	56.7	—	51.7	—	44.3	—	

II. Table of Actual Temperatures in Degrees Fahrenheit

(A = mean of daily maximum temperatures; B = mean of daily minimum temperatures)

	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Aver- age.	No. of years obs.
I. LAÏ. Lat. 9° 23' N. Long. 16° 19' E. Alt. 1,180 ft.														
B.	56.5	53.6	55.3	68.9	69.8	—	—	63.1	55.6	52.2	56.8	61.2	—	—
II. LAMY. Lat. 12° 06' N. Long. 15° 06' E. Alt. 869 ft.														
A.	91.6	94.8	101.8	106.7	103.8	100.6	92.1	88.0	91.8	98.6	97.7	95.7	96.9	4
B.	55.6	59.0	66.0	75.9	76.3	74.8	73.9	72.3	72.8	71.6	62.6	59.7	68.2	4
III. ARCHAMBAULT. Lat. 9° 7' N. Long. 18° 23' E. Alt. 1,279 ft.														
A.	95.2	96.3	100.4	100.0	95.7	90.2	89.1	85.5	86.9	91.4	94.6	95.0	93.4	1
B.	61.5	61.0	70.7	75.4	74.8	71.6	70.2	70.3	70.3	69.1	66.2	63.4	68.7	1
IV. NGAOUNDERÉ. Lat. 7° 17' N. Long. 13° 19' E. Alt. 3,575 ft.														
A.	84	85	82	84	83	81	83	79	82	81	84	82	83	3
B.	56	57	58	61	61	64	62	62	61	60	60	56	60	3
V. BANGUI. Lat. 4° 22' N. Long. 18° 35' E. Alt. 1,322 ft.														
A.	90	92	91	91	90	87	86	85	87	87	89	88	89	3
B.	65	67	70	69	69	68	68	68	68	67	68	66	68	3
VI. YOKADOUA. Lat. 3° 31' N. Long. 15° 7' E. Alt. 2,854 ft.														
A.	84	85	87	87	87	84	84	83	86	87	87	85	85	4
B.	62	64	65	65	65	65	64	66	66	66	65	65	65	4
VII. YAOUNDE. Lat. 3° 52' N. Long. 11° 32' E. Alt. 2,398 ft.														
A.	84	85	85	84	83	80	79	78	79	80	82	82	82	4
B.	67	68	68	67	67	67	67	66	66	66	67	67	67	4
VIII. DOUALA. Lat. 4° 03' N. Long. 9° 41' E. Alt. 26 ft.														
A.	86	86	86	86	88	83	80	80	81	81	84	85	84	12
B.	73	74	73	73	72	71	71	72	71	73	73	72	72	12
IX. LIBREVILLE. Lat. 0° 23' N. Long. 9° 26' E. Alt. 115 ft.														
A.	87	88	89	89	88	85	83	84	85	86	86	87	86	11
B.	73	72	73	73	72	70	68	69	71	71	71	72	71	11
X. PORT GENTIL.* Lat. 00° 43' S. Long. 8° 47' E. Alt. 50 ft.														
A.	84.6	84.0	85.8	86.9	85.6	83.3	78.9	79.5	82.0	83.3	83.3	84.2	83.9	1
B.	75.0	75.4	76.3	77.2	76.3	73.6	62.8	67.5	71.6	73.8	74.1	74.3	73.2	1
XI. BOLOBO. Lat. 2° 10' S. Long. 16° 13' E. Alt. 1,080 ft.														
A.	86.4	87.6	88.7	88.5	87.3	85.8	86.5	87.3	86.9	86.4	85.5	85.3	86.9	3
B.	71.8	71.8	71.9	72.1	71.8	71.4	70.5	71.1	72.3	71.4	70.9	70.9	71.5	3
XII. BRAZZAVILLE.* Lat. 4° 17' S. Long. 15° 16' E. Alt. 1,080 ft.														
A.	86.4	86.0	88.9	88.2	86.5	84.9	80.4	81.9	85.5	87.4	84.4	85.6	85.5	1
B.	69.6	69.3	69.4	69.4	69.3	66.9	60.8	64.0	67.1	69.1	69.6	69.8	67.9	1
XIII. MAYOUMBA. Lat. 3° 25' S. Long. 10° 38' E. Alt. 200 ft.														
A.	84	85	86	86	83	79	78	79	79	82	82	83	82	8
B.	73	72	73	73	72	69	68	68	70	72	73	73	71	8
XIV. LOANGO. Lat. 4° 39' S. Long. 11° 48' E. Alt. 164 ft.														
A.	85	86	87	87	84	81	78	78	80	83	85	85	83	7
B.	73	74	75	74	73	69	66	66	69	72	73	73	72	7
XV. POINTE NOIRE.* Lat. 4° 47' S. Long. 11° 31' E. Alt. 50 ft.														
A.	85.3	86.0	87.6	87.1	85.1	82.8	78.1	77.7	79.5	82.2	83.8	84.6	83.3	1
B.	73.9	73.8	73.9	74.1	73.6	70.0	63.3	65.5	69.6	71.9	73.6	74.1	71.4	1

* Figures for 1939.

III. Rainfall Table

(R.I. = rainfall in inches; R.D. = rainy days; a rainy day is a day with $\frac{1}{16}$ th inch or more of rain.)

		J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Yr.	Obs. yrs.
Laï	R.I.	0	0	1.4	0.8	5.4	5.7	5.9	12.0	17.7	7.5	0	0	56.4	1
	R.D.	0	0	3	3	14	11	15	18	18	6	0	0	88	1
Garoua (755 ft.)	R.I.	0	0	0.8	4.0	4.5	6.4	5.9	5.7	2.2	0	0	0	29.5	7
Lamy*	R.I.	0	0	0	0.3	1.8	2.6	6.5	9.6	4.0	0.6	0	0	25.4	9
	R.D.	0	0	0	1	6	7	13	19	9	3	0	0	58	9
Archambault	R.I.	0	0	0.1	0.4	2.9	5.0	12.6	8.0	11.1	0.3	1.2	0	41.7	1
Crampel (1,755 ft.)	R.I.	0	0.1	2.0	2.1	5.4	6.0	8.5	8.8	9.0	7.5	1.1	0.4	50.9	3
	R.D.	0	1	4	5	10	10	13	14	14	12	3	1	87	3
Ngaoundéré	R.I.	0.3	0	2.8	5.6	11.6	15.8	14.0	11.2	7.9	6.3	0.1	0.3	75.9	4
	R.D.	1	0	8	15	19	27	27	25	24	19	1	1	167	4
Foumbam (3,881 ft.)	R.I.	0.1	0.9	2.0	5.1	10.0	5.7	11.3	11.4	12.6	9.6	2.4	0.1	71.3	9
Yoko (3,351 ft.)	R.I.	0.9	0.7	1.9	6.4	6.7	5.2	4.1	5.6	8.5	10.4	3.0	0.1	53.6	15
Douala	R.I.	1.8	3.7	8.0	9.1	11.8	21.2	29.2	27.3	20.9	16.9	6.1	2.5	158.5	23
	R.D.	7	9	14	17	19	23	27	27	25	24	13	7	212	21
Edea (98 ft.)	R.I.	1.9	4.2	6.2	10.8	13.7	4.1	4.5	7.0	17.4	16.9	6.7	0.4	93.8	4
Yaoundé	R.I.	0.6	1.1	6.7	7.0	9.0	8.0	3.8	2.2	9.2	12.3	4.2	1.5	65.6	4
	R.D.	2	4	14	17	18	19	13	11	22	25	14	5	164	4
Youkadouma	R.I.	0.7	1.5	3.9	5.2	5.1	6.8	5.9	5.3	8.3	8.9	10.3	2.2	64.1	3
	R.D.	1	3	8	11	10	13	10	11	14	15	8	4	108	3
Bangui	R.I.	0.6	1.7	5.9	6.2	6.3	7.3	9.3	11.8	5.7	9.3	3.3	1.8	69.2	3
	R.D.	2	4	9	11	9	11	13	15	11	15	6	5	111	3
Mobaye (1,256 ft.)	R.I.	0.2	1.7	3.9	5.7	5.8	9.6	4.7	9.1	10.5	8.3	4.8	0.9	65.2	3
Kribi (33 ft.)	R.I.	4.3	7.4	8.6	13.3	10.1	8.3	2.5	9.4	12.7	20.2	9.6	2.6	109.0	5
Batanga (33 ft.)	R.I.	5.7	10.2	8.7	14.2	9.2	5.9	5.5	5.8	24.9	22.1	8.5	2.5	128.1	2
Campo (33 ft.)	R.I.	7.2	10.9	4.8	14.7	10.5	1.9	0.9	3.5	11.8	17.1	9.3	2.4	95.3	6
Ebolova (2,099 ft.)	R.I.	1.2	4.3	9.3	9.4	9.2	5.3	3.2	1.8	7.6	16.5	7.6	2.1	74.0	12
Lomié (2,130 ft.)	R.I.	0.1	0	6.3	7.1	7.9	3.5	2.3	2.1	8.7	13.5	5.9	1.2	58.7	10
Moloundou (1,381 ft.)	R.I.	1.5	1.3	4.3	6.7	7.1	3.9	3.1	6.5	6.5	15.8	3.5	1.6	68.7	10
NouvelleAnvers (B.C.)	R.I.	4.1	3.5	4.1	5.6	6.2	4.2	6.3	6.3	6.3	6.6	2.8	9.4	65.1	2
Libreville	R.I.	10.5	10.4	13.8	13.0	9.6	0.7	0	0.8	3.9	11.3	14.6	8.6	97.2	11
	R.D.	12	14	17	16	11	3	0	5	11	19	18	10	136	11
Port Gentil*	R.I.	12.6	16.6	15.0	5.2	13.0	4.5	0	0	1.1	3.9	8.5	12.4	92.8	1
	R.D.	15	12	12	15	15	3	0	0	3	21	17	20	133	1
Loukokéla (B.C.)	R.I.	5.5	5.3	6.0	5.6	6.2	3.7	1.3	3.3	5.9	8.5	6.1	6.5	63.9	12
	R.D.	9	8	10	11	11	7	3	5	10	12	13	11	110	8
Bolobo (B.C.)	R.I.	5.0	7.0	4.6	7.2	5.6	0.5	0	2.6	3.9	6.5	9.6	10.2	62.8	4
Mayoumba	R.I.	6.5	9.3	6.2	10.2	2.3	0.1	0	0.2	2.6	9.3	10.7	4.6	62.0	8
	R.D.	11	12	10	12	8	1	0	2	9	16	16	9	106	8
Brazzaville	R.I.	6.3	4.9	7.4	7.0	4.3	0.6	0	0	2.2	5.4	11.5	8.4	57.9	18
Loango	R.I.	5.4	6.7	6.4	8.0	3.9	0	0	0	0.4	4.1	6.6	6.6	48.1	7
	R.D.	10	12	12	14	7	1	1	1	7	15	14	11	105	7
Pointe Noire	R.I.	5.5	16.3	7.5	12.8	8.3	0	0	0.1	0.1	7.9	2.5	8.1	69.1	1
	R.D.	11	18	14	17	10	0	0	1	2	10	14	10	107	1

* Figures for 1939 only.

IV. Humidity Table (per cent.)

A = Mean of Monthly Maxima.

B = Mean of Morning, Afternoon, and Evening Readings.

C = Mean of Monthly Minima.

		J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Year	Obs. yrs.
Lamy .	. A	77	63	48	62	75	79	91	95	76	83	72	63	74	2
	C	13	8	8	13	26	30	49	59	46	29	16	13	26	2
Bangui*	. A	99	97	97	99	99	100	98	99	99	99	98	99	99	1
	C	31	36	44	46	50	51	53	56	53	55	50	47	48	1
Douala .	. B	85	85	87	86	87	88	91	91	90	90	88	87	88	15
Libreville .	. B	85	86	86	85	86	85	83	84	84	87	87	85	85	11
Port Gentil*	. A	94	90	86	83	84	83	84	86	86	91	94	96	88	1
	C	72	64	64	65	67	65	61	59	61	69	73	73	65	1
Bolobo .	. B	82	81	80	81	82	77	72	72	76	82	84	84	79	5
Brazzaville*	. A	99	97	98	98	97	97	96	94	89	90	97	96	96	1
	C	54	58	54	52	57	56	53	50	46	45	57	52	53	1
Mayoumba .	. B	95	95	95	95	94	95	90	82	90	95	95	96	93	8
Loango .	. B	85	85	83	84	86	83	82	83	82	84	85	85	84	7
Point Noire*	. A	95	95	94	95	96	96	94	91	90	92	90	90	93	1
	C	60	58	57	59	64	57	45	59	61	58	60	61	58	1

* Figures for 1939 only.

V. Table of Cloud Amount. Scale 0-10

	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Year	Obs. yrs.
Yaoundé	2.9	5.5	5.9	5.4	4.7	5.6	6.1	5.6	6.7	6.8	5.1	3.3	5.3	—
Douala	5.7	6.2	6.7	6.7	6.8	7.7	8.7	8.8	8.4	7.6	6.8	5.9	7.2	16
Libreville	6.3	6.8	6.8	6.7	7.1	7.4	7.2	7.5	7.4	7.4	7.2	6.9	7.1	11
Mayoumba	6.4	6.1	6.7	5.9	6.6	6.0	5.2	6.4	6.7	7.6	6.8	5.5	6.3	8
Loango	6.9	7.3	6.5	6.8	7.3	6.8	6.4	8.2	8.2	8.0	7.8	6.6	7.2	7

VI. (a) *Barometric Pressure in millibars at Mean Sea-level, reduced to 32° F. and Lat. 45° N.*

	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Year	Obs. yrs.
Douala	1009	1009	1008	1009	1010	1012	1013	1012	1011	1010	1009	1009	1010	14
Libreville	1013	1012	1012	1012	1013	1015	1016	1016	1015	1013	1012	1012	1013	3
Mayoumba	1006	1006	1005	1006	1007	1009	1010	1009	1008	1007	1007	1006	1007	8

VI. (b) *Barometric Pressure in millibars at Lamby for 1940. Latitude 12°06' N. Altitude 869'. Unreduced.*

	Morning		Evening	
	Min.	Max.	Min.	Max.
January . . .	976.6	979.3	975.2	977.4
February . . .	977.1	979.7	974.9	978.1
March . . .	975.3	978.0	973.1	976.0
April . . .	973.2	975.8	970.7	973.8
May . . .	973.3	976.4	971.1	974.0
June . . .	975.6	978.8	973.7	976.7
July . . .	977.5	980.0	975.5	978.8
August . . .	977.6	979.9	975.9	978.7
September . . .	976.4	978.9	974.2	977.1
October . . .	975.6	978.0	972.9	976.0
November . . .	976.4	978.3	974.1	976.6
December . . .	978.0	980.5	975.7	978.7
Averages . . .	976.05	978.6	973.9	976.8

VII. Wind

		Percentage of observations from								Calm	No. of days gales (5 yrs.)	No. of days fogs (9 yrs.)
		N.	NE.	E.	SE.	S.	SW.	W.	NW.			
DOUALA (15 years)	J.	2	6	10	3	4	21	26	3	25	0.2	10.0
	F.	2	4	9	3	5	23	22	3	29	0.4	7.0
	M.	3	5	13	4	5	20	23	2	25	1.0	4.0
	A.	4	6	12	4	5	20	23	2	24	1.0	1.0
	M.	3	7	10	3	6	19	25	2	25	1.0	2.0
	J.	2	4	7	2	5	21	28	2	29	0.0	1.0
	J.	1	3	5	2	5	22	24	3	35	0.0	1.0
	A.	1	3	5	2	4	21	27	4	33	0.0	0.8
	S.	3	4	6	2	4	25	23	4	29	0.0	0.4
	O.	1	4	10	4	4	22	18	4	33	0.0	1.0
	N.	4	6	11	4	3	20	22	5	25	0.0	2.0
	D.	2	5	11	4	4	21	22	5	26	0.0	7.0
	Means	2	5	9	3	5	21	24	3	28	—	—
LIBREVILLE (11 years)	J.	0	0	3	26	3	34	13	0	21	0.6	0.6
	F.	0	0	3	21	4	29	16	0	27	1.0	0.6
	M.	0	0	3	21	5	29	16	2	24	2.0	0.2
	A.	0	0	23	23	3	29	8	7	27	2.0	0.0
	M.	0	0	2	23	3	27	15	3	27	1.0	0.1
	J.	0	0	2	22	12	28	13	2	21	0.1	0.2
	J.	0	0	2	27	13	26	19	0	13	0.3	0.2
	A.	0	0	0	28	8	27	21	0	16	0.2	0.1
	S.	0	0	2	25	8	32	18	0	15	0.5	0.1
	O.	0	0	1	24	2	31	18	0	24	0.7	0.0
	N.	0	0	2	25	5	28	18	0	22	1.0	0.1
	D.	0	0	1	24	10	21	18	0	26	0.9	0.5
	Means	0	0	2	24	6	29	16	1	22	—	—
MAYOUMBA (8 years)	J.	32	3	10	3	42	3	7	0	0	—	—
	F.	32	4	11	11	36	3	3	0	0	—	—
	M.	35	7	16	7	29	3	3	0	0	—	—
	A.	27	7	17	7	36	3	3	0	0	—	—
	M.	23	3	29	6	39	0	0	0	0	—	—
	J.	30	3	14	3	40	7	3	0	0	—	—
	J.	35	10	10	3	26	3	6	7	0	—	—
	A.	32	3	10	3	29	7	13	3	0	—	—
	S.	27	10	7	10	30	3	10	3	0	—	—
	O.	36	0	3	13	29	3	13	3	0	—	—
	N.	20	7	3	4	47	13	3	3	0	—	—
	D.	29	6	3	10	39	7	3	33	0	—	—
	Means	30	5	11	7	35	5	5	2	0	—	—
LOANGO (7 years)	J.	0	0	3	5	16	37	12	1	26	—	—
	F.	1	0	1	7	14	26	15	4	32	—	—
	M.	1	2	1	21	13	24	17	3	18	—	—
	A.	4	2	8	11	14	19	18	3	21	—	—
	M.	0	0	2	9	17	28	14	0	30	—	—
	J.	0	0	0	2	20	35	22	0	21	—	—
	J.	0	0	0	2	32	43	16	1	6	—	—
	A.	0	0	0	0	3	60	24	0	13	—	—
	S.	0	0	1	11	33	36	8	0	11	—	—
	O.	0	0	1	11	30	46	2	1	9	—	—
	N.	0	2	6	14	29	32	11	0	6	—	—
	D.	0	0	5	9	31	39	5	1	10	—	—
	Means	1	1	2	8	21	35	14	1	17	—	—

CHAPTER V FLORA AND FAUNA

A. FLORA AND VEGETATION

General (see Fig. 50)

THROUGHOUT a great part of Africa north of the equator plant-life varies with latitude, forming long, and sometimes relatively quite narrow, east-to-west strips or zones. Climate determines their incidence and width; but, whereas rainfall is the most important climatic factor, temperature, also important, is modified by altitude, and some local climates and vegetations result. Soil conditions and the action of man, the latter often destructive, have their effects. The zone sequence, which cuts across political boundaries, is most clearly marked within the tropics from longitude 28° E. westwards to the Atlantic seaboard. The major zones, some 3,000 miles from east to west, may be but 300 or less in width. Botanically the zones are recognized by the presence of certain kinds (species and genera) of plants, i.e. by the character of the flora, and by the occurrence and relative importance of special plant communities, i.e. by the character of the vegetation. Both flora and vegetation show a certain, and often high, degree of uniformity within each zone, and typically clear cut differences between them. Transition from one to another is sometimes abrupt but more often gradual, and in detailed local studies it may be necessary to recognize and describe areas of transition from one major zone to the next. In any one zone may occur islands, or extending arms, of vegetation which should properly be included in a zone to the south or, more rarely, to the north. Within the major zones there are secondary differences in the flora and vegetation which may make it convenient to recognize domains within a zone. To the best of our limited knowledge, these domains are not long east-to-west belts as are the zones, and are irregular, and not well known, in shape. Nevertheless, the division of the vegetation of northern tropical Africa into zones roughly parallel to the equator is a correct generalization of great importance.

French Equatorial Africa, extending north by east from the Gulf of Guinea to the southern Sahara, is essentially a broad, and slightly oblique, slice across all the major zones. It shows, therefore, as wide a range of conditions, apart from those of high mountain areas, as can be found in any political area of equal size in Africa, or perhaps in the

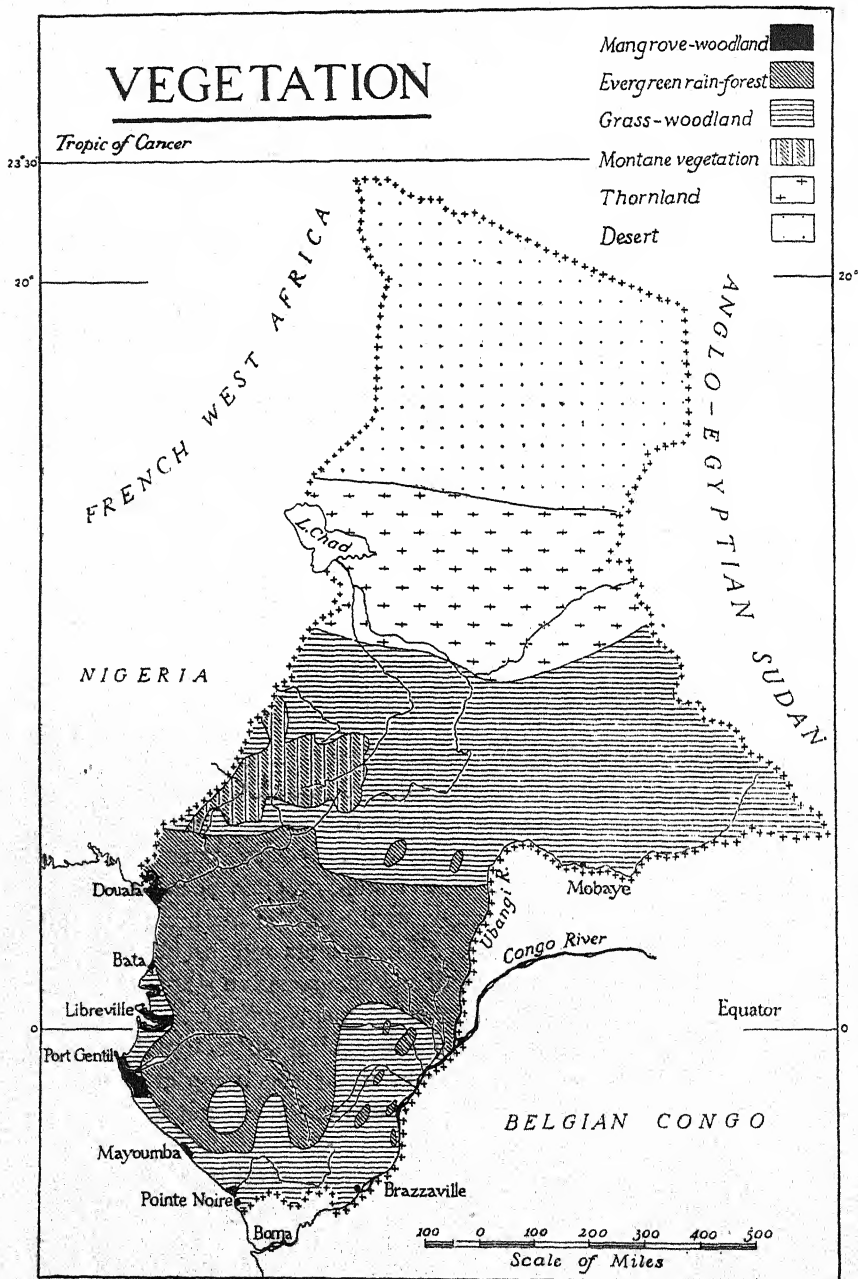


FIG. 50

world. The colony is entirely within the tropics and temperatures are therefore high, but rainfall varies from that of the south-western Cameroons, one of the wettest districts in the world, to that of the southern Sahara, one of the driest. In general terms, rainfall decreases northwards, and in the same direction dominant and characteristic plant types become more and more such as are able to survive and reproduce under dry conditions. Vegetationally, and in succession from south to north, there is a dominance of:

- (a) evergreen forest, (b) mixtures of grassland and woodland,
- (c) grassland, and (d) desert.

Unfortunately the terminology used by different authors, both for the zones and for their characteristic plant communities, is not uniform. In the account which follows an attempt has been made to adopt the most suitable English name, but in order to facilitate comparison with other accounts the more important synonyms are given in the general text. It follows from the short and troubled history of French Equatorial Africa that botanical exploration has been very imperfect; some large areas, indeed, have never been visited by a botanist, and others only at one season of the year. It is possible, therefore, that some of the generalized descriptions which follow will need modification for certain localities within the zones, though they have been based upon the best and most modern material available.

The following are the major zones of plant-life in French Equatorial Africa from south to north:

- I. Dense Equatorial Forest Zone (with islands of grass-woodland especially in the south).
- II. Grass-Woodland Zone (with some modified montane vegetation), including sub-zones: (a) Tropical High Grass, Low Tree Savanna; (b) Tropical Orchard Country.
- III. Thornland Zone.
- IV. Desert Zone.

In terms of plant-geography these zones are sometimes known by the following names or some modification of them:

- | | |
|---------------------------------|----------------------------------|
| I. Equatorial Zone. | III. Sahelian ¹ Zone. |
| IIa. Guinea Zone or Sub-zone. | IV. Saharan Zone. |
| IIb. Sudanese Zone or Sub-zone. | |

¹ 'Sahel' (Arabic) is normally used of a coastal belt, generally sandy. It is often used by French writers to imply a sandy border, edge, or 'march' between contrasting features.

I. DENSE EQUATORIAL FOREST ZONE

In French Equatorial Africa this zone extends from the southern and south-eastern boundaries to about latitude 4° N. in the east and nearly to latitude 5° N. in the west. In the south, east, and north-west it extends into the neighbouring countries of Cabinda, Belgian Congo, and Nigeria. Three principal plant communities are easily recognizable: (1) mangrove-woodland: (2) equatorial evergreen rain-forest; (3) grass-woodland. The mangrove-woodland is strictly confined to certain parts of the coast; the rain-forest occupies by far the most extensive area and is 'the dense forest proper' of some authors; the grass-woodland is best represented in the lowland areas not far from the coast and in the south-east.

1. *Mangrove-woodland* (see Plate 18)

This occurs in discontinuous areas on the coast of the Cameroons, Spanish Guinea, and Gabon. It is sometimes known as mangrove swamp, tidal forest, or simply as mangrove. It consists of woodland communities below high-tide mark, sometimes forest-like, sometimes more scrub or brushwood in appearance, and is practically limited to deep estuarine muds which are rich in organic matter and flooded with more or less saline or brackish water at least at high tide. Most, but not all, of the river estuaries and creeks have mangrove-woodland lining both shores up-stream to near the tidal limits. The most important constituents of the West African mangrove-woodland are the two typical 'mangroves' *Rhizophora racemosa* and *Avicennia nitida*, but several other species are associated with these and may predominate locally, though generally they are scattered. The leaves are dark green, leathery in texture and shining; the stems are often pale grey. Tidal mud has many peculiar factors, and we find striking adaptations shown by the mangrove plants. At ebb tide trees are seen to be anchored in the mud by a great development of stilt or prop roots, often criss-crossing and forming barricades against entrance, whilst lower growth is often densely covered with molluscs. From the mud project numerous breathing roots, those of the *Avicennia* in shape resembling *Asparagus* shoots, generally growing straight up. These breathing roots serve for gaseous exchange between the atmosphere and the plant parts beneath mud and water. Another peculiarity of several of the species of mangrove is that the seeds germinate in the fruit while it is still attached to the parent tree. A club-shaped main root-like axis bursts through the fruit wall and grows to several inches

in length before breaking away from the parent branch, with the young stem apex attached. The heaviest portion of the seedling is towards the root end, so that, in falling, it penetrates the mud with the shoot end uppermost. This 'viviparous' self-planting allows seedlings to establish themselves on the soft mud within considerable limits of tidal scour. In the pure mangrove-woodland few other plants than the specialized mangroves themselves can grow, and there is absence or scarcity of such typical features of many tropical woodlands as lianes (woody climbers) and even epiphytes (plants growing on trunks and branches). The trees are 25 to 75 feet high, and diameters up to 2½ feet have been recorded. The marginal trees are often shortest and most branched, the branches frequently touching the water at flood times. Towards the centre of a mangrove-woodland trees are taller with more slender and less branched stems. The canopy is usually dense. The bark and fruits are rich in tannin, and the wood is valuable for constructional purposes where there is risk of attack from termites or molluscs.

Higher up the creeks salinity becomes less pronounced, and other plants mix with the mangrove-woodland. Screw-pines (*Pandanus*) make their appearance and gradually gain the upper hand. The appearance of the vegetation changes greatly, and the rather monotonous mangrove-woodland gives place, on the marshy ground, to a thick scrub of screw-pines, raphia palms (*Raphia vinifera*), and a wild spiny date (*Phoenix reclinata*). Climbing and clambering plants make their appearance, orchids grow on the tangled branches, and the delicate colouring of their flowers alternates with the yellow of those of a member of the hollyhock family (*Hibiscus tiliaceus*). Other associated plants are rikio (*Uapaca staudtii*), bossipi (*Oxystigma mannii*), bahia (*Mitragyna stipulosa*), ovala (*Pentaclethra macrophylla*), and rouin palms (*Calamus* spp.). The rikio sometimes forms locally pure communities. The riverain belt of raphia palms often extends some distance inland into the forest area, access to which from the water may be difficult.

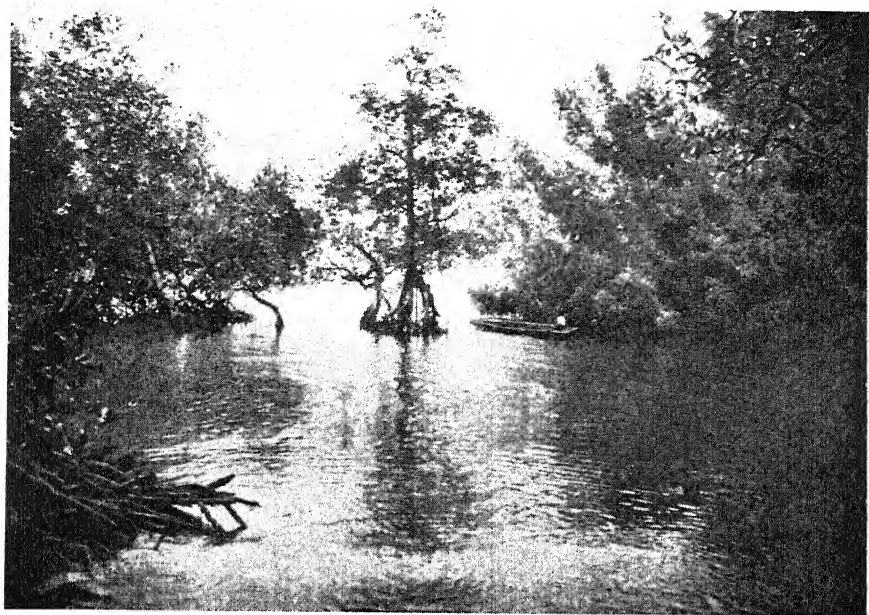
2. Tropical Evergreen Rain-forest (see Plate 19)

This is variously known as Equatorial Rain-forest, Tropical Rain-forest, Wet Evergreen Forest, or Tropical Lowland Evergreen Rain-forest. It covers a very large part of the southern Cameroons, Spanish Guinea, and Gabon, but is more broken by grass-woodland in the southern and central parts of Moyen Congo. Throughout the area temperature, rainfall, and humidity are high, not only in yearly total,

but all and every day. Seasonal and diurnal fluctuations are much less than in other zones, and have correspondingly little effect on plants. The important characters of the undisturbed tropical evergreen rain-forest are: its evergreen, dense, closed canopy; height at least 90 feet, but comparatively often much taller; abundance of thick-stemmed woody climbers; considerable growth of epiphytes or herbaceous and woody plants on the branches and trunks, particularly in the upper parts, of the forest trees; scarcity or absence of grasses and other ground flora. Other features of the tropical evergreen rain-forest are the development of 'buttresses', the production of flowers on trunks and old branches (cauliflory), and the frequent occurrence of drip-tips to the leaves. The buttresses are large extensions of trunk and roots at and around the bases of the trees, often reaching to a height of 30 feet up the trunk. They are of varying shapes and sizes. Some are plank-like, closed or open at the base; others are sinuous, and there is every gradation into the fluted trunk. The shape and general nature of the buttresses, but not necessarily their size, are constant for a given species of tree. Their function remains obscure (*see* Plate 20).

The primeval tropical rain-forest is in complete biological equilibrium with its environment, and so allows neither entry nor establishment of foreign species. The almost infinite complexity of these forests safeguards them against most natural calamities, such as epidemics of insect pests and fungal diseases. The prevalent moisture forbids the spread of fires. The density of the forest, its several stories, the variety of composition, the flexible stems and foliage of many of the trees, and the anchoring effect of woody climbers make it proof against even the most violent storms. The primeval forest does not in fact contain within itself the seeds of its own decay. The great mixture of tree species ensures a kind of natural rotation in any single part of the forest; and soil exhaustion, which may be a marked feature with pure communities, is absent. The primeval forests are not the product of the soil, in the sense that very poor soils may, in this equatorial region, bear magnificent trees. It is, indeed, more true to say that the soil is the product of the forest, and when the latter is destroyed by man its fertility is rapidly lost. As a consequence cultivation shifts from clearing to clearing. A soil survey, including examination of soil profiles and soil analyses, is desirable before attempting forest removal for land settlement.

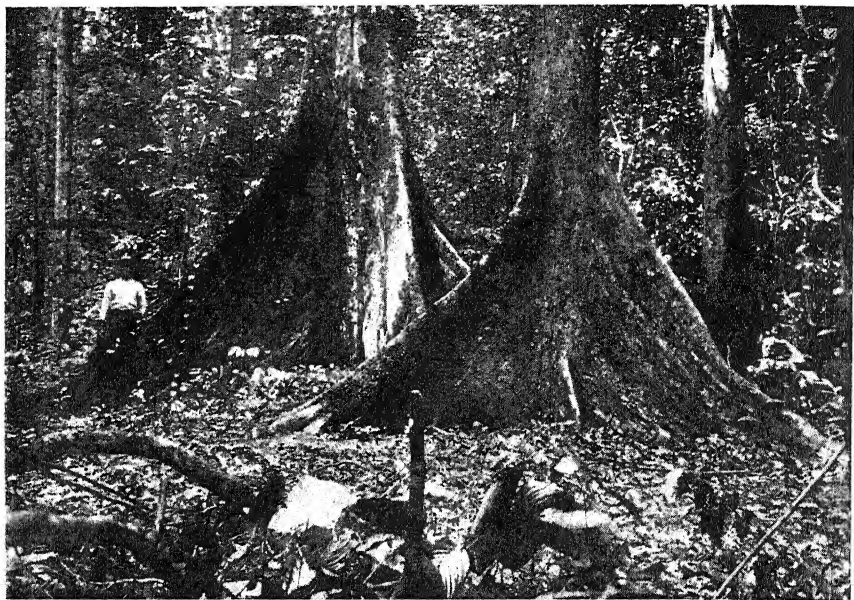
While the forest as a whole is truly described as evergreen, there are some trees which shed all their foliage at one or other period of the year. This leaf-fall is, however, frequently irregular and appears to



18. *Creek with Mangrove Swamp at High Tide*



19. *Primitive Rain Forest*



20. *Buttress Roots*



21. *Interior of Rain Forest—Woody Climbers*

depend more on internal rhythms than on any seasonal change. Thus, not infrequently, one tree may be bare of foliage while another of the same kind may be in full leaf. Moreover, with many trees the period without leaves is very short. Flowering and fruiting times are irregularly distributed throughout the year, and for this reason, and also because of the height of the tree strata, neither flowers nor fruits are a conspicuous feature of the forest.

The life of this mature, dense, tropical evergreen rain-forest is an interplay between light and that tree canopy which is generally in tiers. Giant individual trees project above the general level, and in certain areas there are three fairly well-defined tree-top stories ranging, respectively, from 120 to 150 (or more) feet, from 50 to 120 feet, and up to 50 feet. Beneath the tree canopy so formed there may be ill-defined shrub and herb strata, though these are often extremely poor. They are described below in dealing with early successional stages of secondary forest, where they form dominant features of the vegetation.

A striking feature of the tropical evergreen rain-forest, as developed in French Equatorial Africa, is the great diversity of its component woody plants. There is no complete modern guide to the flora of this area, and estimates of the number of species of trees and shrubs vary from one to three thousand. Mixture of kinds is the rule; pure stands, even of small extent, are the exception; and the local predominance of this or that species is rarely reported. In other words, individuals of any one species are widely scattered—a matter of considerable importance in the exploitation of timber resources. Trees of commercial value are, indeed, often so far apart, and so difficult of access, that general statements on the value of these forests for timber purposes should be received with caution. On the other hand, the forest is not uniform throughout, since variations in soil, especially in soil moisture in relation to rivers and streams, in altitude, and in local climate, control the ranges of various species. The vast majority of the plants have no English or European names, whilst many have even no known native names of any reliability. It would be out of place, here, to give long lists of botanical names which have meaning and significance only for the expert. Mention may, however, be made of a few trees (see p. 114) which are of special importance because of their size, conspicuousness, or economic value.

Other important genera of trees, some represented by several species, are: *Entandrophragma*, *Dialium*, *Macrobium*, *Erythroxylon*, *Sideroxylon*, *Croton*, *Drypetes*, and *Pachylobus*.

English name	Some Native names	Botanical name	Height	Diameter of trunk
Djave nut	Moabi	<i>Mimusops djave</i>	Up to 200 ft.	6-8 ft.
African oak or Bush oak	Iroko	<i>Chlorophora excelsa</i>	180 ft.	5 ft.
Silk-cotton tree	Buma	<i>Ceiba pentandra</i>	120 ft.	6 ft.
	Erundu	<i>Piptadenia africana</i>	Up to 180 ft.	6-8 ft.
Wild (or false) nutmeg	Bokonda	<i>Pycnanthus kombo</i>	140 ft.	4-5 ft.
Meni oil tree	Bongosi	<i>Lophira alata</i>	180 ft.	4 ft.
Pattern wood tree	Bokuka	<i>Alstonia congoensis</i>	..	..
	Bosambi	<i>Uapaca staudtii</i>	90 ft. and more	..
Umbrella tree	Asseng, &c.	<i>Musanga smithii</i>	..	..
Wild or African mango	Dika, &c.	<i>Iringia gabonensis</i>	..	..
Oil bean tree	Kombolo	<i>Pentaclethra macrophylla</i>	..	..
Barwood or redwood	Muenge	<i>Pterocarpus soyauxii</i>	100 ft.	..
	Djombe, &c.	<i>Terminalia superba</i>	160 ft.	3-5 ft.
African wood-oil-nut tree	Njangsang	<i>Ricnodendron africanum</i>	..	..
African walnut or Gabon nut	Wula	<i>Coula edulis</i>	..	..
Oil palm	Elen, &c.	<i>Elaeis guineensis</i>	Up to 80 ft.	8-16 in.
	Ngondo	<i>Klainedoxa gabonensis</i>	..	..
Red-flowered silk-cotton tree	Johi	<i>Bombax buonopozense</i>	..	..
African tulip or flame tree	Etutu, &c.	<i>Spathodea campanulata</i>	..	..
Ordeal tree	Ėlun or el-long, &c.	<i>Erythrophleum guineense</i>	..	..
Gabon mahogany	Okoumé	<i>Aucoumea klaineana</i>	Up to 140 ft.	3-5 ft.
Gabon acajou	Acajou	<i>Khaya klainei</i>	Up to 125 ft.	3-5 ft.

This very meagre list must suffice to indicate the wealth and variety of tall trees in the forest. Not only is the number of species and genera very great, but the number of families represented is also large. A short selection of important families with numerous woody representatives should be mentioned: the pea (*Leguminosae* in the broad sense), the madder family (*Rubiaceae*), the spurge family (*Euphorbiaceae*), the periwinkle family (*Apocynaceae*), the nettle family (*Urticaceae* in the broad sense), and the sapodilla family (*Sapotaceae*). Woody climbers (lianes), whose twisting, coiling stems scramble up and over the trunks and branches from tree to tree growing up towards the light, belong especially to the pea family, the

periwinkle family, silk-weed family (*Asclepiadaceae*), acanthus family (*Acanthaceae*), and the *Menispermaceae* (see Plate 21).

In the primitive, undisturbed, and mature parts of the tropical evergreen rain-forest ground herbs are of quite secondary importance. The most important families represented are the ginger family (*Scitamineae* in the broad sense) and the acanthus family. Ferns do not form important groups, though a number of genera are represented (e.g. *Bolbitis*, *Diplazium*, *Dryopteris*, and *Asplenium*) and a tree fern (*Cyathea camerooniana*) is also known.

In the same forests plants living on the trunks and branches (epiphytes) are often not obvious from the ground but are frequently numerous on the upper branches of the canopy since they need light. They include numerous ferns, aroids, and orchids. Mention should also be made of certain species of fig (*Ficus*) whose seeds germinate on the branches of trees. The resultant seedlings develop two kinds of roots: one which grows down to the soil and the other which clasps and coils round the host in such fashion as eventually to strangle it. By the time the host is killed the roots, having reached the ground, are usually strong enough to support their own canopy of branches and foliage. Another interesting feature of the rain-forest is the growth of lower plants (cryptogams) on the leaves of trees and shrubs. There is often a dense growth of mosses, liverworts, and algae forming a film on the surfaces of the rather large, broad, entire leaves characteristic of the rain-forest.

In the Cameroons ground rises from the coast inland by three main steps marked by escarpments. These steps show certain differences, of a secondary nature, which, in turn, have led to three distinct altitudinal zones. The forest of the lowest zone, on the great alluvial plain traversed by the lower courses of the rivers, is marked by the considerable numbers of Meni oil trees (*Lophira*) and other elements. The forest of the intermediate zone on the first plateau is the region of optimum development of the Africa oak or iroko (*Chlorophora*) and the djave nut or moabi (*Mimusops*), and forms the most typical and prevailing type of evergreen tropical rain-forest. In the forest of the upper zone, on the second central plateau, *Entandrophragma* spp. ('sapeli') and *Triplochiton scleroxylon* ('ayous') predominate. The relationship between this last and the montane vegetation of the grass-woodland major zone remains unsettled.

The tropical evergreen rain-forest exists under climatic conditions which are the most favourable in the world for tree growth. Consequently the destruction of any part is followed by a quick regeneration

of the woody plants. As has been said above, ordinary agents of destruction such as fire act very locally and temporarily and result in little more than small-scale but continuous replacements of individuals or small patches. Deliberate clearing, by natives for cultivation, has other and more lasting effects. This clearing involves the temporary destruction, by axe and fire, of much, but not all, of the woody vegetation. Giant trees, too difficult to cut down with primitive tools, and trees of economic value are frequently left behind, while only herbs and small woody plants are uprooted. Stumps left behind are often able to throw up shoots, and do so with great rapidity of growth under such extremely favourable conditions. The site is abandoned after a very few years and is quickly overgrown with a dense tangle of tall herbs, shrubs, young trees, shoots from pollarded stumps, and climbers. All successional stages in the development of secondary forest can be traced, and although it is uncertain for how long it can be distinguished from primitive forest, long periods, possibly even centuries, must certainly elapse. Indeed, some authorities affirm that primeval forest never completely re-establishes itself.

Newly abandoned sites of cultivation are easily recognized by the following peculiarities: the abundance of species of such herbs, shrubs, and climbers as require light; the density of the undergrowth and of climbers; the growth of shoots from stumps; the absence of well-developed trees, apart from isolated 'giants' and some trees producing edible fruits; absence of certain species usually characteristic of primary forest; the superabundance of certain kinds of plants such as members of the *Acanthus*, ginger, and grass families (*Acanthaceae*, *Scitamineae*, and *Gramineae*); the remnants of plantations, such as bananas and pawpaw (*Carica papaya*). In some areas deserted clearings are quickly overrun by bracken (*Pteridium aquilinum*) or tall grasses (*Imperata cylindrica* and *Andropogon* spp.). Such communities dominated by one or a few species are, however, temporary, and invasion by a wide range of shrubs and trees follows quickly in the course of a very few years. Early colonizers are often soft-wood types of especially quick growth (*Musanga smithii*, *Anthocleista nobilis*, *Vernonia conferta* are examples, the first being particularly characteristic of old clearings). Under the protection of the shrubs and pioneer trees, seeds of shade-loving species germinate and the resulting seedlings largely reproduce the normal features of the primary forest. Meanwhile the herbs and light-demanding species in general become reduced. The presence of oil palms (*Elaeis guineensis*) always suggests that the area was at one time under cultivation.

3. *Grass-woodland or Savanna of the Equatorial Forest Zone*

Areas, of greater or less extent, over which the vegetation consists mainly of grasses with scattered small trees, are particularly common in parts of Moyen Congo and Gabon. The grasses are largely tall species of *Andropogon* and related genera, but other herbs in considerable variety, including orchids and ferns, are mixed with them, especially along pathways and where the grasses are less dense. The trees are, on the whole, different from those of the forest, and many belong to or are related to Sudanese species. The grass-woodlands are fired at frequent intervals, generally at least once a year. These recurrent fires account, in part, for the dwarfed nature of the trees, and destroy the dry stems of the herbaceous vegetation up to the limits of the forest, but are there extinguished after causing little damage to the outermost belt of plants so rich in moisture. Rivers and streams crossing the grass-woodland country are always fringed by rather open forest, of no great height or size. Along perennial rivers the trees often meet overhead and may then be accurately described as forming a 'gallery forest', which is usually no wider on each bank than the river it borders. There seems no clear evidence that the grass-woodland is gaining on the forest, but little detailed field work has been done on the vegetation of these southern grass-woodlands, and their origin and relationship can only be made clear by further research and by careful comparison with the more extensive and continuous grass-woodlands of the next major zone.

II. GRASS-WOODLAND ZONE

In western and northern central Africa this major zone has many local variants, but is more or less clearly divisible into two sub-zones (regarded as separate zones by some authorities):

- (a) Tropical High Grass, Low Tree Savanna and
- (b) Tropical Orchard Country or Brushwood Park.

The former contains a large number of species of flora whose range extends from the Guinea area, but these are mixed with Sudanese species. The latter is more distinctively Sudanese. The boundary between the two sub-zones lies between 8° and 9° N. Different authors have used many names—sometimes synonyms such as tree-savanna, savanna-woodland, and parkland, sometimes more technically descriptive such as brush forest—for this major zone. Its salient features are: mixture of 'grasslands' and trees; the

woody plants usually much lower than in the dense equatorial forest; the trees shed their leaves annually and occur in scattered groups or singly; poverty in woody undergrowth, woody climbers, and plants growing on trunks and branches (epiphytes); great variety of herbs, including tall grasses forming a continuous cover over extensive areas; presence of well-marked fringing forests. These last are such a characteristic and important feature of the zone that in the account below they are treated separately, since they form marked exceptions to many of the generalizations made regarding the dominant vegetation and flora of the sub-zones. This zone is much less homogeneous than that of the dense equatorial rain-forest, and parts of it are extensively cultivated. (See Plate 22.)

(a) *Tropical High Grass, Low Tree Savanna*

The dominant vegetation consists of coarse, rank, perennial grasses with flowering stems 6 to 18 feet high whose culms dry at the end of the rainy season and are then consumed by fires. These grasses do not form a closed turf, but the plants have distinct bases and do not link up with each other to form a continuous mat. The grassland is markedly seasonal. With the advent of rains growth is quick, and the new shoots speedily develop a dense green cover of blades. With development of the flowering stems a thick high cover is produced which is difficult to penetrate except along paths. After fruiting and at the beginning of the dry season the grasslands dry out to a yellow straw colour, but burning nearly always follows quickly and the whole country is then blackened, the trees standing out bare or with dead leaves. Amongst the more important of the tall grasses are species of *Andropogon*, *Hyparrhenia* (thatching-grasses), *Cymbopogon* (oil-grasses), *Pennisetum* (including the elephant-grass, *P. purpureum*), *Panicum*, and *Imperata* (silver spike). These grasses yield a large amount of forage of a coarse kind and the grasslands are a favourite haunt of many large and small herbivorous animals.

Many of the trees associated with the grassland show marked adaptations against fires, but also show, individually, the effect of the fires, which are often started for hunting, as well as for agricultural purposes. Thus a thick development of fire-resistant corky bark and the ready production of shoots from dormant or adventitious buds are common features. Most of the trees shed their leaves early in the dry season and renew them a month or two before the return of the rains. Amongst the more important trees are members of the pea family such as species of *Acacia*, *Bauhinia reticulata*, and *Parkia*

filicoidea (African locust bean), also the shea butter tree (*Butyrospermum parkii*), an important economic plant, the meni oil tree or false shea (*Lophira alata*), palms such as the African fan palm (*Borassus aethiopum*) and the doum or dom palm (*Hyphaene thebaica*).

(b) *Tropical Orchard Country* (see Plate 25)

This is variously termed Acacia, Tall Grass Savanna, Tree Steppe, Orchard Bush, Orchard Steppe, Park Land, or Brushwood Park. Here and there population is relatively dense and much of the natural vegetation has been destroyed or highly modified by man. As a consequence, secondary plant communities predominate and relicts of primitive vegetation occur only along watercourses, on rocky uncultivated elevations, and on stony hill slopes. Fairly tall grassland 3 to 5 feet in height, with scattered trees 10 to 50 feet high, characterize this sub-zone. There is a marked dry season during which the greater number of the trees and shrubs lose their leaves. All the grasses and other herbs dry up and are, at that time, very often fired, the yellow or pale red of sun-dried herbaceous growth giving place to black. From the return of the rains, or even some time before, the new foliage develops, the trees and shrubs flower, and the ground is covered with a green, though sometimes interrupted, sward; finally numerous annual plants develop. With the trees in full leaf and a well-developed green grass cover on the ground the appearance is that of a vast park. The grasses are shorter than in the tropical high grass-low tree savanna and the trees, relative to the grasses, are taller, their crowns standing well above the tops of even the flowering culms. The grasses are not sufficiently dense to form a serious obstacle to movement. Amongst the more important grasses are species of *Andropogon*, *Hyparrhenia*, *Heteropogon*, and *Themeda*.

On the hills and plateaux the flora is of a markedly dry and warm type (xerothermic) and is much less modified by man than elsewhere. The most characteristic trees are from 20 to 50 feet high and are usually mixed and sparsely distributed through the grasslands. It is seldom that these trees grow in clumps. In the frequently cultivated or even permanently occupied areas certain useful trees are preserved and form true orchards. Such trees include shea butter tree, one of the African locust beans (*Parkia biglobosa*), and winter thorn (*Acacia albida*). Members of the pea family are amongst the most frequent trees, and include species of *Albizzia*, *Acacia*, *Cassia*, *Entada*, and *Prosopis*. Other characteristic tree genera are *Combretum* and

Terminalia. The baobab (*Adansonia digitata*), though not limited to this sub-zone, is not infrequently a prominent tree (see Plate 23).

Grazing is not very good over much of this sub-zone, especially during the dry season, when herbivorous animals, wild or domestic, have to rely mainly on grasses growing near the rivers and streams. In the more densely peopled localities cultivation may be practically continuous and a great variety of crops is grown.

(c) *Fringing Forests* (see Plate 24)

Fringing and gallery forests have already been described. They are common in the grass-woodland zone, and particularly so in the tropical high grass-low tree savanna sub-zone. Fringing forests are those belts growing on both banks of river or stream, and where they meet, enclosing the stream in a kind of arborescent tunnel, the term 'gallery forest' is often used, especially by French authors. They depend on a high water-table continuously renewed, even in the dry season, by seepage from the watercourse, and are, therefore, confined to continuous, narrow, though often long, strips usually from 10 to 20 yards wide on each bank. In constitution and appearance they are totally different from the grass-woodland which dominates the zone, and are closely related to the tropical evergreen rain-forest. They have even been described as green tentacles creeping out from the evergreen rain-forest into the grass-woodland zone. Authorities differ as to whether they represent, or, alternatively, the degree to which they represent, extensions or relicts of rain-forest which formerly covered all or much of the grass-woodland zone. The fact remains that many, or even most, of the tree species of the fringing forests occur also in the dense equatorial rain-forest, that many of the trees are of considerable size, that there is abundant development of woody climbers and epiphytes, and that the forest, as a whole, is evergreen.

(d) *Montane Vegetation*

Within the grass-woodland zone of the central Cameroons lies an area of high mountain plateaux and peaks, with a vegetation distinct from that of the lower lands of the zone. The Cameroon mountains themselves, with their distinct altitudinal belts of vegetation, and their temperate flora on top, lie outside the boundaries of French Equatorial Africa. The high land of the south-central Cameroons is largely covered with high forest, grass-woodland, and high grass-savanna (sometimes 12 to 18 ft. high). No one of these communities

is continuous, but there is a tendency for the forest to occur as larger or smaller islands surrounded by grass-woodland or grassland. The forest contains a mixture of different types of trees, including many of the species found in the dense equatorial rain-forest. It is, however, distinct from the latter in the larger number of trees which shed their leaves (deciduous as distinct from evergreen), remaining bare for a considerable period, and by fewer epiphytes. In some parts woody climbers (lianes) are well represented.

III. THORNLAND ZONE

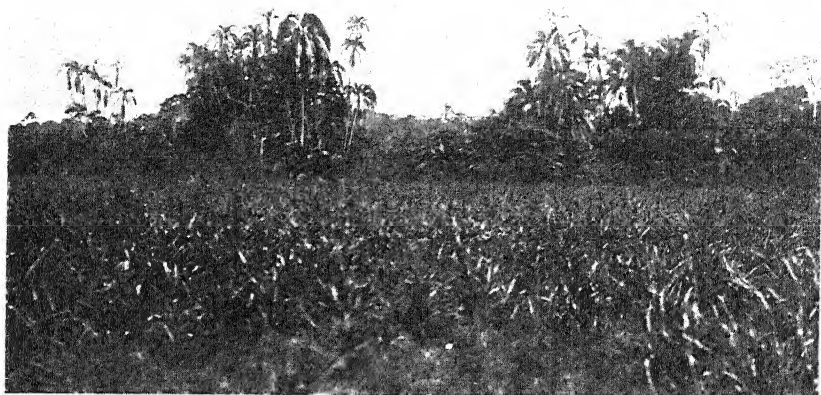
This zone, which has been variously termed Thorn Forest, Acacia-desert-grass Savanna, Orchard Steppe, and Thorn Bush Steppe, forms an obvious transition between the grass-woodland zone and the desert vegetation of the Sahara. The vegetation is composed of plants which can survive and reproduce under dry conditions (i.e. of xerophytes). Woody species are not very numerous and are mostly dwarfed spiny trees, especially species of *Acacia*. In the rainy season numerous herbaceous plants are scattered over the soil but do not form a continuous carpet. Firing of brushwood is not greatly misused in this zone, since there is not the density of wood or herbaceous growth necessary for extensive fires, but grazing is an important controlling factor. Over the area there are many rocky hills and large extents of sands and more or less fixed sand-dunes. These dunes, now largely flattened, harbour many spiny 'mimosas'. Lake Chad and Lake Fittri and other vast depressions with sand or alluvial soil, are inundated for part of the year, and form at least a seasonal asylum for marsh and water plants. In the eastern part of the zone there are many eastern species ranging from Abyssinia, Nubia, and even Arabia. The fringing forests along the watercourses generally differ in species from those of the grass-woodland zone, but, in their turn, represent a partial northward extension of them (e.g. *Diospyros mespiliformis*, *Cynometra vogelii*, and *Pterocarpus esculentus*).

Several more or less distinct communities have been recognized for this zone. Thorn-forest consists of rather low thorny trees, mostly acacias, growing sufficiently close together to form a closed or almost closed canopy, and having little grass, weeds, or scrub on the forest floor. Examples are restricted in number and extent and are very sporadic in their occurrence. Locally associated with the acacia trees (*Acacia nilotica*, *A. seyal*, *A. raddiana*) are several others (*Commiphora africana*, *Maerua crassifolia*, *Boscia senegalensis*, *Balanites*

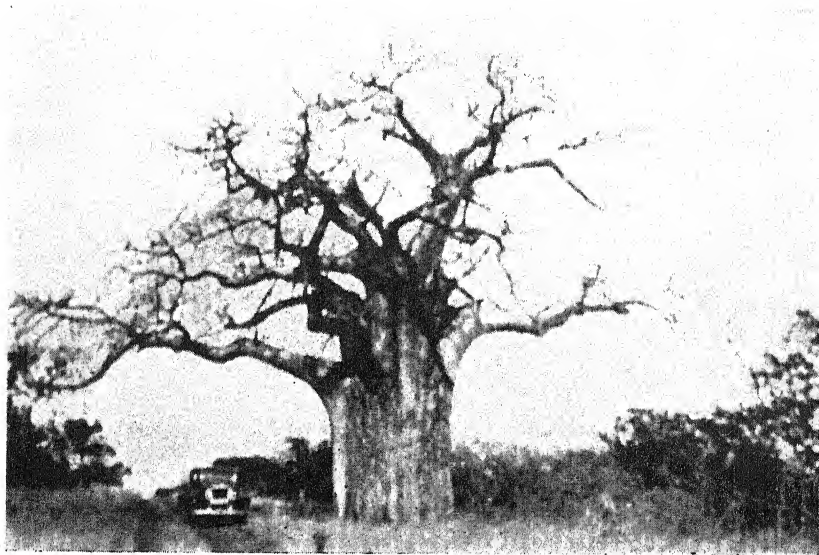
aegyptiaca). Thorn-savanna consists of small thorn trees, not above 10 feet high, irregularly spaced and often as far apart as 15 feet. They form an open canopy but have fairly thick crowns. Acacias are again dominant, but are frequently mixed with species of *Balanites*, *Boscia*, *Commiphora*, *Calotropis*, *Maerua*, and *Ziziphus*. There is a ground vegetation of some luxuriance providing good grazing. Thorn-scrub occupies very extensive tracts. The low trees (5 to 7 feet in height) are mainly of the same kinds as in the other communities, but are more sparsely represented. The grass between the trees is tussocky and intermittent. Here and there trees are absent and unequal patches of pure grass-steppe take their place. The grasses are mostly of a hard wiry type and include species of *Aristida*, *Sporobolus*, *Andropogon*, *Cenchrus*, *Ctenium*, and *Eragrostis*.

Extensive areas of this zone are periodically inundated, particularly in the north-west, though the extent and duration of inundation varies greatly. The vegetation of these areas is largely composed of grasses and members of the sedge family. Bulbous, rhizomatous, and tuberous plants are also common and include species of such well-known genera as *Crinum*, *Dipcadi*, *Pancratium*, *Anthericum*, and *Chlorophytum*. In these marshy areas ant-hills rise well above the general level and support a woody vegetation consisting of a considerable number of trees, shrubs and woody climbers, with which various herbaceous climbers are associated.

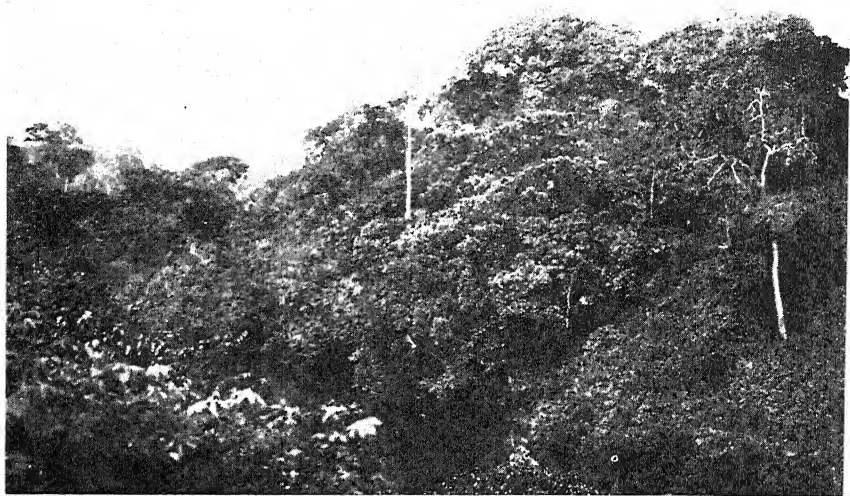
Lake Chad is very largely surrounded by marshes of varying extent and composed of plants capable of adapting themselves to fluctuating water-levels. Characteristic marsh plants of the area are the papyrus (*Cyperus papyrus*), bulrushes (*Scirpus*), bog-rushes (*Schoenus*), and the tall reed grass *Phragmites*. By means of its robust and multiplying underground stems (rhizomes) papyrus tends to obtain dominance over large extents of marshland. The amount of open water in the lake varies both seasonally and over periods of years, and many true aquatics have been recorded from it: such as species of *Pistia*, *Wolffia* (rootless duckweed), *Nymphaea* (water-lily), *Utricularia* (bladderwort), *Pontederia*, *Nitella*, and various diatoms and other algae. The area is not entirely without woody plants. The asclepiad *Calotropis procera* and the palm *Hyphaene thebaica* occur on islands in Lake Chad. Other woody plants of the district are species of *Acacia* (*A. tortilis*, &c.), a nettle tree (*Celtis integrifolia*), soapberry tree or desert date (*Balanites aegyptiaca*), koubo or houri (*Crataeva religiosa*), and species of *Bauhinia* and *Leptadenia*. On dried-up and drying areas the yellow-flowered ochro or lady's fingers (*Hibiscus esculentus*) and



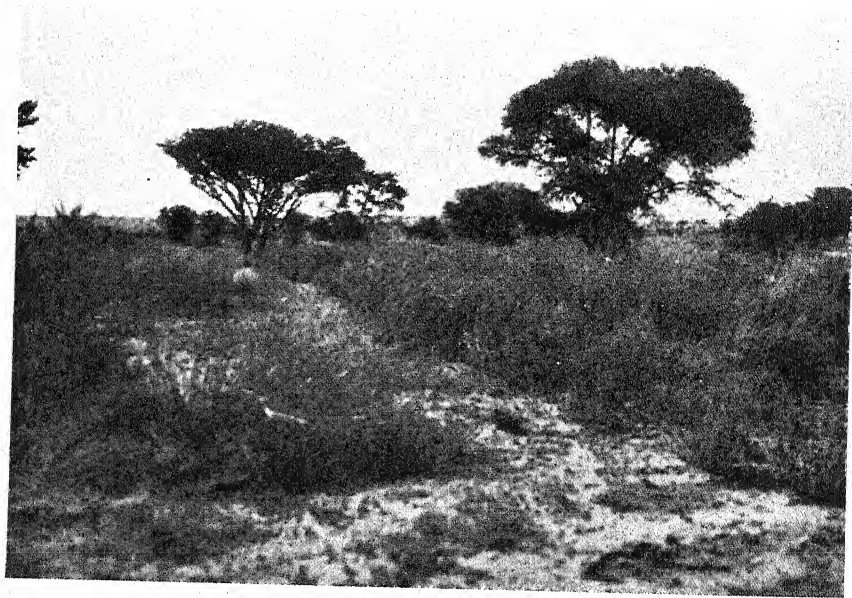
22. *Savanna Area with Palms*



23. *Baobab Tree*



24. *Fringing Forest*



25. *Orchard Bush*

the asclepiad *Calotropis* (known in British West Africa as swallow-wort or auricula tree) spread rapidly and often dominate much former marshland, at least temporarily.

IV. DESERT ZONE

Botanically very little is known about that part of the central Sahara that lies in French Equatorial Africa. In spite of the low and exceedingly irregular rainfall there are relatively few extensive parts entirely and permanently without vegetation. Apart from oases, two main types of vegetation can be distinguished in the desert: a very scattered permanent vegetation of low scrubby plants, bushes, including, in particularly favoured areas, small trees; and an ephemeral covering of herbs. The former is best developed where underground watercourses raise the water-table sufficiently near to the surface to enable the roots of dwarf shrubs, and the rarer low trees, to reach it throughout the dry periods. The latter is a characteristic feature of most Saharan districts and is widely known as 'acheb'. It consists of plants whose seeds germinate immediately after the rains, develop quickly into leaf, and, without pause, produce flower and fruit. The whole life-history occupies but a few weeks and, thereafter, the whole plant is scorched up, its seeds distributed, and the remnants of stems and foliage broken and scattered by the wind. After rain the 'acheb' is a carpet of coloured flowers; within a few weeks it has entirely disappeared.

Some authorities distinguish an east-to-west 'Middle Saharan Zone' from a parallel 'Southern Saharan Zone'. The former includes some of the most barren parts of the Sahara, while in the latter there is an annual, though small and irregular, rainfall with better development of both permanent and temporary vegetation. The boundary between these two zones or sub-zones is not sharply demarcated and it remains doubtful whether they can be separated in northern French Equatorial Africa. They are, therefore, not distinguished in the account given here. Throughout the major zone the flora is extremely poor. It is composed of a mixture of typical Saharan species with an infiltration, more marked in the south, of Indo-Ethiopian elements. The flora of the higher parts of the Tibesti massif is probably largely distinct, and what little is known about it is summarized at the end of the account of this zone.

Areas of sand are often formed into dune systems by the wind. The sand itself is by no means the most unfavourable substratum for

plant growth, but the formation of a plant cover is prevented by the extreme dryness of the climate in the desert and the mobility of the dunes, caused by winds. The resulting vicious circle (dry windy climate—no vegetation—moving dunes) cannot be broken artificially as it has been in many coastal dune systems. Actually, where there is sufficient water from underground sources, a sandy soil often bears a relatively closed and varied vegetation. This may even be sufficiently closed to constitute grassland and to provide valuable grazing. Such arid or semi-arid grasslands are mostly near the southern border of the desert zone. The most barren and monotonous deserts are those with a rocky or stony substratum, and large stretches of these have only an occasional low shrub to represent the permanent vegetation and a very local development of 'acheb' in isolated depressions.

In some parts of the Sahara there are extensive saline areas which support a relatively rich salt-loving vegetation of special species (halophytes). This halophytic vegetation consists largely of chenopods (i.e. members of the goose-foot family or *Chenopodiaceae*) and is of considerable importance in forming good permanent forage for sheep, goats, and camels.

In the wadis, or ouadis, where there are subterranean water-courses, vegetation of a perennial type consists of shrubs, and small trees which, however, very rarely form a closed community. They afford browsing for camels and may indicate possible sites for artesian wells. A number of these tall shrubs or small trees, extensions of the thorn-scrub zone, lose their leaves in the driest seasons (species of *Acacia* and *Balanites*). In the southern parts of the zone there are some small trees with persistent leaves (*Salvadora persica*, *Boscia senegalensis*) and even a few evergreen woody climbers (*Cocculus pendulus*, *Leptadenia lancifolia*). In some wadis where water is at or very near to the surface a growth of reed grass (*Phragmites communis* var.) occurs.

Oases, in their existing form, and sometimes in their origin, are the works of man. The most common tree is the date-palm (*Phoenix dactylifera*), which is a human introduction. The high water-table, assisted by irrigation from wells, gives conditions extremely favourable to the date palm, which has been described as 'a plant flourishing with its feet in water and its head in burning sun'. In the oases in the desert zone of French Equatorial Africa the first dates ripen in May, while the last are gathered in September. The ground is then prepared in small irrigated squares for the sowing of wheat in November and December. The crop, harvested towards the end of March, is

not heavy, and is succeeded by millet. Very few weeds, and often very few traces of indigenous vegetation, are to be found in these southern oases. Poor grazing-grounds of wiry grasses with hard, sharply pointed leaves, and herbs of low nutritive value surround the palm plantations of some of the larger oases. Probably here, as certainly in other parts of the Sahara, animal life has modified the vegetation, palatable species have been killed out, or greatly reduced in number, by wild and domestic herbivores, and only those plants survive which are protected by their poisonous or unpalatable qualities or by the development of a dense mass of hard, sharp thorns.

The major part of the Tibesti mountains is included in French Equatorial Africa. The flora of these mountains is only partially known and details of their vegetation are meagre. About 150 species of vascular plants (i.e. seed-bearing plants, and members of the fern group) have been recorded from the massif. The majority of these are typical of the general Saharan flora, but a number of species have been described which are not known elsewhere (endemics). It seems probable that here, as in the Ahaggar mountains to the north-west, it is possible to distinguish a lower zone without permanent vegetation, except where water occurs near the surface, and one or more high mountain zones above 6,000 feet, with a somewhat diffused vegetation of partly Mediterranean affinities. These high mountain plants represent a flora which formerly had a wider extension.

Associated with permanent water are a number of marsh and aquatic plants, many of them of wide range. These include a species of reed-mace (*Typha australis*), pondweeds (*Potamogeton natans*, *P. perfoliatus*), a duckweed (*Lemna gibba*), sea rush (*Juncus maritimus*), marshwort (*Helosciadium nodiflorum*), brookweed (*Samolus valerandi*), and a bladder-wort (*Utricularia exoleta*). There are also various grasses including silver spike (*Imperata cylindrica* var.) and species of *Panicum*, *Saccharum*, and *Andropogon*.

There are meagre areas of cultivation in Tibesti, round those permanent water supplies which make some irrigation possible. The date palm, doum palm, fig, cereals (wheat, barley, sorghum, millet), and vegetables are grown.

B. FAUNA

No account of the fauna of French Equatorial Africa could be adequately given without reference to zoo-geography. The land masses of the world have been divided into regions of which the boundaries

have little reference to the geographical outlines of the present day, but depend upon past history and the effects of present-day climate upon vegetation, upon which animals ultimately depend. The importance of the vegetation is obvious; a fact which endorses the sequence of this book. The land and fresh-water areas of the globe form six zoological regions, and most of Africa forms the Ethiopian region, one of the most clearly defined. It comprises the continent south of a line at about 20° north latitude with the south-west part of Arabia, Madagascar, and the adjacent isles. The northern part of Africa and Arabia, with Asia north of the line of the Himalayas, belong to the Palaearctic region: the rest of Asia with the East Indies to the west of a line drawn north between Bali and Lombok, and between Borneo and Celebes, forms the Oriental region.

The Ethiopian region (*see* Fig. 51) is itself divided into sub-regions corresponding well with the vegetational areas. Its most characteristic sub-region is the West African, the area in which lies the heavy continuous rain-forest: it is surrounded by the East African sub-region which, as a zoological entity, extends to Senegal and the Cape. It is better to think of the African fauna as denizens of rain-forest or the more arid types of savanna, rather than as, geographically, 'East' African or 'West' African. Since the zones of vegetation run approximately east and west, and French Equatorial Africa runs north and south, that country comprises samples of all degrees from rain-forest to desert; their extent and names are indicated in the reference to Fig. 51. The extreme northern part of the country is exceptional for an equatorial African political territory in passing into the Palaearctic region (Tibesti). The fauna of Tibesti should be studied in relation to that of similar mountain masses in the Sahara, e.g. the Ahaggar mountains and Air.

A caveat is necessary here. Many migrant birds, from the Palaearctic region, winter in the territory under consideration, but that does not mean it has a claim to be considered Palaearctic, for these titles depend upon breeding animals only.

It is plain that much of the fauna must be shared with Nigeria and the Belgian Congo.

As regards the rain-forest area Long and Chapin have pointed out that 'the relative absence of important mountains, the generally slight elevation, the typically moist equatorial climate with little or no seasonal changes are factors that have facilitated the even dispersal of flora and fauna to such a degree that uniformity, one might almost say monotony, has become the hall mark of this great

forested complex'. Yet there are differences, for the same authors point out that on the eastern confines, in the Ituri and Ouelle districts, *species* are often different from those lower down the Congo system. Thus the French Congo probably does not greatly differ from the Belgian. On the other hand, Schmidt, when considering the

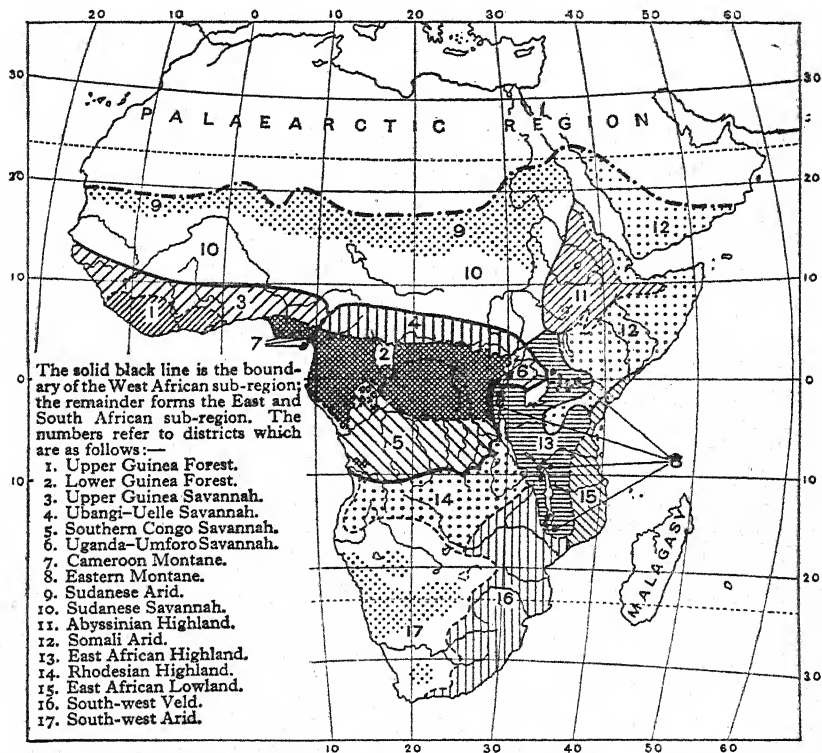


FIG. 51. Faunal Areas of the Ethiopian Region based on the Distribution of Birds.

distribution of reptiles, emphasizes the localization of the genera and species in the Gabon and Ituri regions: 'the two centres of development correspond to distinct watersheds, the Gabon-Cameroon area being cut off from the Congo basin, while the Iturian area represents the headwaters of the Congo. These two areas are separated at present by great swamps and periodically flooded areas in the central Congo, and it seems certain that this swampy area must have had a much greater extension. This separation by swamps or lakes is held to account for the distinction of the faunas of the upper and lower Congo areas'.

A characteristic of the great African forest is that it sends out extensions into the surrounding savanna country along the rivers. True forest trees, in a narrow belt along each bank, arch over the river, forming 'gallery forest' in which denizens of the great forest can find the ecological conditions they require. Such gallery forests enable real forest animals to be seen under much easier conditions: within quite a short distance there may also be the typical savanna fauna. It should always be remembered that the most fundamental distinction in Africa, ecologically, is between the forest and grass-dwelling faunas. (Ecology, the study of the whole environment including climate.)

The Ethiopian region is characterized by absence, and presence, of important groups of animals. There are no true moles; no bears, deer, or wild sheep; but the gorilla and chimpanzee, giraffe, hippopotamus among mammals; the secretary bird, guinea-fowls, turacos, and colies among birds; the *Kinixys* tortoise with hinged shell; the puff-adders and egg-eating snake; almost all chameleons; the tongueless *Xenopus* frogs; Mormyrid fish with down-turned snouts; the tsetse flies, and great *Achatina* snails are peculiar to the region.

It is also the headquarters of the lemurs, antelopes, Cichlid fish, and *Acraea* butterflies. Its affinities with the Oriental region are shown by the great cats, rhinoceroses, mongooses, and pangolins among mammals; hornbills, rollers, bee-eaters, coucals, sunbirds, weaver-birds and, worthy of especial notice, two recently discovered species belonging to groups hitherto considered typical of the Oriental region only, a peacock and a true 'Broadbill' (Eurylaemidae). Among reptiles, the crocodiles, pythons, cobras, and 'monitor' lizards show Oriental relationship. Affinities with South America (Neotropical region) are shown by some rodents, and snakes, frogs, Cichlid fish, and a beautiful day-flying moth (*Urania*). The antiquity of the Ethiopian region is shown by the preservation of primitive groups such as the Edentata, lung-breathing fish, and *Peripatus*, a creature linking together the insects and their allies with the worms.

The fauna has important bearings on human activities. Lions are common in the Logone and Shari valleys, and everywhere, outside the forest, where there is game. Leopards, more universal, are often found near villages which have sheep, goats, and dogs. Elephants, common in the forest, do not seem to have diminished in number. Hippopotami, gradually leaving the larger and more used waterways, abound in marshes and the smaller rivers. The depredations of elephants and hippopotami are notorious. On the other hand, West Africa has not

the herds of game which are the bane of the East African planter: the small Duiker antelopes, however, are often a nuisance. Baboons, as everywhere, are extremely troublesome, and being intelligent and wary, are not easily shot or trapped: stories of attacks on man are greatly exaggerated. Grain crops are much devoured by pigeons, weaver birds, &c., and most natives find it necessary to post small boys to throw stones and scare away depredators. The smaller parrots devour ground-nuts, and the colies or mouse-birds quickly eat the hearts out of papai fruits from the ends.

Regarding the fauna as suppliers rather than as destroyers of food, the most productive areas are probably the fishing centres on the big rivers, the country south of Lake Chad where game abounds, and the lake itself, on which is a thriving fishing industry. Grandier states that the fishing industry is especially prosperous in Benue; among the Massa and the Kotoko of Logone (Cameroons); along the Shari among the Toumia; among the Banziri and Sango of the Ubangi, and the Boubangi of the deltas stretching from the Ubangi to the Alima. It is not possible here to deal with marine fish.

Game birds such as bustard, guinea-fowl, and francolins ('Bush fowl') are plentiful in savanna country, but in the rain-forest a white man would be unable to keep himself by his gun: only natives know how to hunt in the semi-darkness. Many natives eat fruit-bats, tortoises, lizards, and the huge *Achatina* snails.

Regarding danger to man from the fauna it may be said that crocodiles are over-estimated in this way. The typically West African slender-snouted species, *Osteolaemus*, is a fish eater; *Crocodilus niloticus* is the only one to be feared. But the American expedition to the Congo, disregarding all rumours and inquiring from officials who had been more than ten years in the country, failed to bring to light a dozen actual cases of loss of human life due to crocodiles.

Of course there are poisonous snakes, but a booted white man has little to fear. The silent-footed native may come upon a resting snake so quietly that it has scarcely time to get away, and strikes in self-defence. The very sluggish puff-adders, however, often will not get out of the way.

The value to man of the great 'Monitor' lizard, *Varanus niloticus* (often mis-called 'Iguana') is not adequately appreciated, and slaughter for its skin should be prohibited. It is an inveterate enemy of crocodiles, devouring their eggs.

Regarding transport, the species of tsetse-fly (*Glossina*) are a dominant factor; Fig. 52 gives their distribution over Africa, and

the area south of Lake Chad should be particularly noted. *Glossina* depends upon suitable shelter from bush or forest and forms two groups of species inhabiting thick forest or gallery forest (the carriers of sleeping-sickness, or chronic human trypanosomiasis), or more open country (the carriers of fly disease of cattle, camels, and horses,

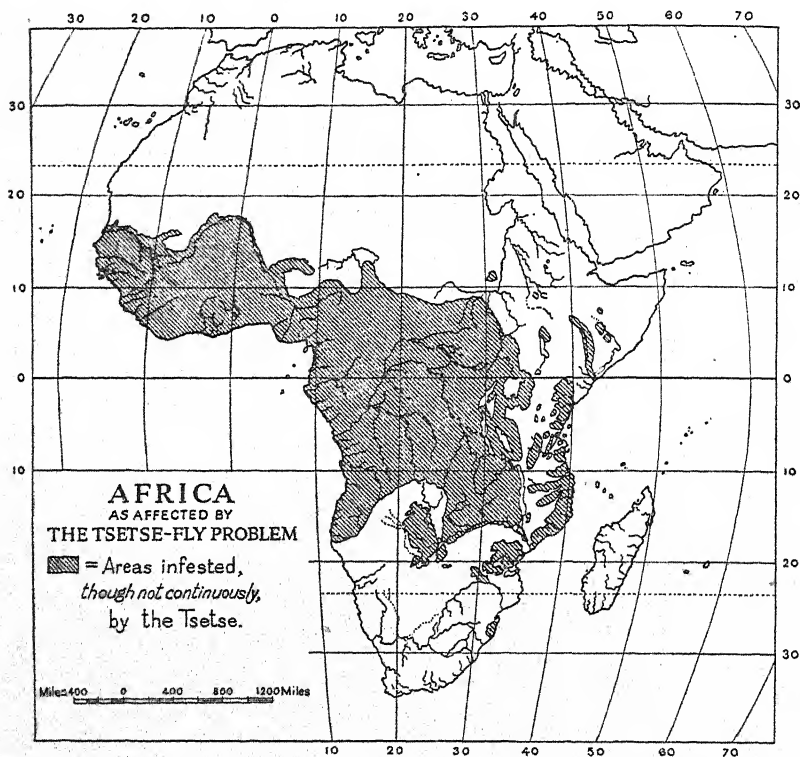


FIG. 52

but also capable of causing acute human trypanosomiasis). An immune strain of native cattle in Nigeria is well known.

Grandidier comments upon small horses known as 'Sara' and 'Laka', and mentions small oxen called 'Kirdi', well acclimatized, that are found between 8° and 10° N. He comments upon the scarcity of butcher's meat as a factor in malnutrition in the equatorial region.

Two small areas bordering the Congo-Nile divide are set apart as game reserves: one centres round Ouanda Djale, the other lies north of Djema, between that place and Zémongo.

The following notes can only deal with a few specially interesting animals.

MAMMALS

Primates

The gorilla occurs in the forests of Sanga and Gabon, the chimpanzee is probably widely spread in the forests. *Colobus* monkeys, some of them with very beautiful long white plumed tails and white fringes along the flanks (Plate 27), and the Mangabeys (*Cercocebus*) with white eyelids, are peculiar to dense forest. The Guenons (*Lasiopyga*, or *Cercopithecus*), of which the common organ-grinder's monkey of old days was a typical example, abound in wooded or forested country. A red species (*Erythrocebus patas*), characteristic of open country, occurs up to Lake Chad. The well-known, hideous, Mandrill baboon occurs in the west only, but others, less brightly coloured (*Papio*), are widely distributed in rocky country. The primitive Lemurs are represented by several forms, such as the well-known tailless Potto (*Perodicticus*) peculiar to dense forest, and its much rarer relative, Bosman's Potto or Angwantibo (*Arctocebus*); and the long-tailed, soft-furred, big-eared Galagos of forest and savanna sometimes known as 'Bush-babies'.

Chiroptera

Bats abound, and the most noticeable are the great fruit-eating species, known as 'Flying foxes' (*Pteropodidae*). They at once attract attention either by their evening flights to feeding-places or by roosting in masses on trees along the rivers. They do not raid banana plantations, but devour ripe wild fruits. A remarkable species, the Hammer-headed bat (*Hypsignathus*), is peculiar to West Africa. The commonest fruit bat (*Eidolon helvum*), of large size, yellowish-brown with yellow throat, is sold in markets for food. Insectivorous small bats of various families abound, and one of the smallest, the Pipistrelle, is especially valuable as it preys upon mosquitoes, *inter alia*.

Insectivora

This important group, specialized to feed on insects, is well represented by many species of shrew (*Crocidura*) and the larger jumping shrews (*Macroscelidae*) with very long snout and elongated hind legs, peculiar to Africa. A species of the remarkable burrowing *Chrysochloridae* known as the 'Golden Moles' occurs in the territory now discussed; there are several species all peculiar to Africa. Hedgehogs

are only found north of the forest: true moles are absent. The most notable insectivore of French Equatorial Africa is *Potamogale*, a large shrew with aquatic habits, known in the Cameroons. About the size of a stoat, it is brown with yellowish belly and a thick tail laterally compressed for swimming.

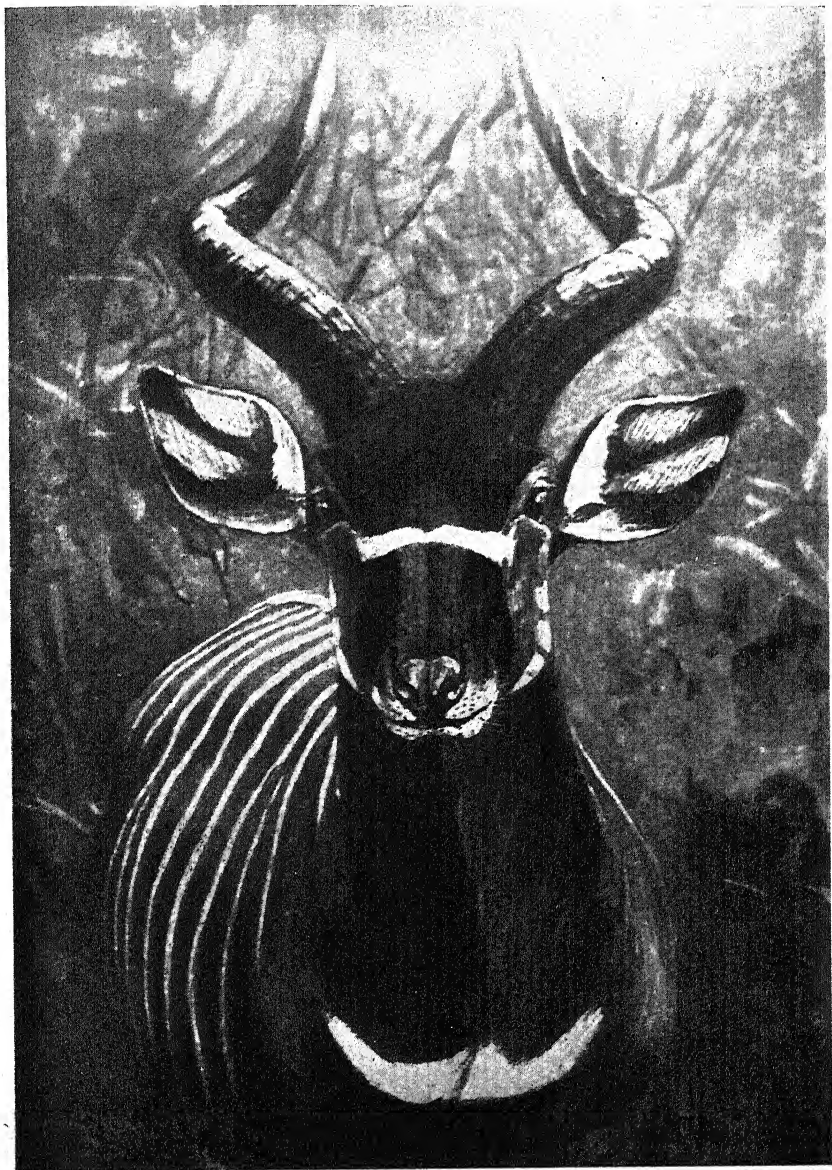
Rodentia

These animals, often difficult to distinguish from each other, are important because they ravage the crops and may harbour plague-carrying fleas. Squirrels with expanded flaps of skin, enabling them to glide from a high to a lower branch, form the families *Anomaluridae* and *Idiuridae*. A species peculiar to the French Congo, *Aethurus*, has the same habits but is without the flaps of skin and has a black bushy tail. Ground squirrels (*Xerus*) are common in open country. Among the *Muridae* may be mentioned species of *Graphiurus*, the pencil-tailed dormice peculiar to Africa, and the burrowing Gerbils of dry country, with long hind legs. A family, *Spalacidae*, contains burrowing, short-tailed creatures with soft fur, *Tachyoryctes*, confined to Africa.

The porcupines and their allies form a third group of rodents: in addition to the common porcupine there is the brush-tailed species of West Africa with longer tail having fewer spines but a tuft of them at the end. Giant rat-like creatures (*Thryonomys*) inhabit the forest.

Carnivora

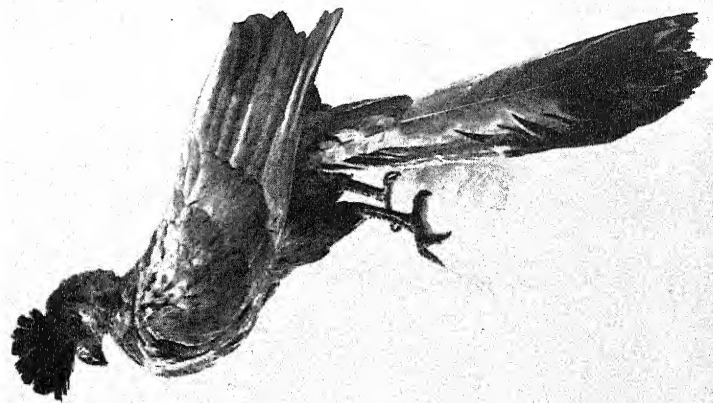
Lions are not found in the forests, but, down to lat. 7° N., on the plains where there is game. A few are found on the Batéké plateau. Leopards are widely distributed. The Serval, with short tail and solid spots, is common. Jackals and the spotted Hyena are creatures of open country rather than forest. The Fennec fox with huge ears may occur in the desert country of the north. The *Mustelidae* contains the ungainly Ratel (*Mellivora*), black and grey with short legs, and otters, of which *Lutra* frequents rivers and *Aonyx*, the larger clawless otter, swamps. *Viverridae* are well represented: there is the Civet, about the size of a collie but with shorter legs, grey-black and spotted but with harsh fur, and several species of Genets, almost peculiar to Africa: beautiful lithe creatures with long tails, strongly marked with spots and stripes and partial to forested country. Mongooses are exemplified by the typical *Herpestes ichneumon*, a pepper-and-salt animal: among others is a conspicuously white-tailed species, *Ichneumia leucura*.



26. *The Bongo Antelope* (*Boocercus eurycerus*)



27. *A Common Colobus Monkey*



28. *The Great Blue Plantain-Eater*

Cetacea

The whales have a most interesting representative in the Cameroon river, a freshwater dolphin, *Sotalia teüszii*.

Sirenia

These curious 'Sea-cows' are represented by the Manatee ('Lamantin' in French), a peculiar creature the size of a small seal, without hind limbs: the fore limbs are flippers, and the tail like that of a whale. It is herbivorous and harmless, and occurs in the Cameroon river, Rio Mouni, Gabon river, Ogowé estuary, Kouilou river, and the Ubangi and Ouelle rivers. At one time it was common in the Chad basin, and one was taken at Léré on the upper Benue near Mayo Kebbi in 1932.

Ungulata. Even-toed.

Among *Bovidae*, antelopes are not so numerous as in East Africa, but are plentiful enough in the Chad basin. The *Bubalinae* supply two species of the ungainly Hartbeestes: *Alcephalus major* extending eastwards from the Cameroons and *A. lelwel* westwards from Uganda: they are separated by the forested Shari river. The Korrigum (*Damaliscus*) reaches Chad from the west. The *Cephalophinae*, comprising the small Duikers, has species peculiar to forest (*Cephalophus niger* and the larger, yellow-backed, *C. sylvicultrix*, with the 'Blue Duiker', *Phalantomba monticola*), and others, more familiar, in the savanna country, often trapped in crops, such as the Bay Duiker, *C. dorsalis*, fulvous with black dorsal stripe. *Neotraginae*, a small group, appears not to include in French Equatorial Africa the name type, *Neotragus* or 'Royal' Antelope of West Africa, only 10 inches high at the shoulder. An Oribi (*Ourebia dorcas*) does occur in French Equatorial Africa.

Cervicaprinae provide the Sing-sing Waterbuck (*Cobus defassa unctuosus*) in the Ubangi-Shari and Chad areas, and Buffon's Kob (*Adenota kob*), which ranges from Nigeria to Chad like the Reed buck (*Redunca redunca*). The *Antilopinae*, or Gazelles, being adapted to very open country, occur only in the Chad area; *Gazella dorcas* and *G. rufifrons* the red-fronted, with the larger, white-rumped *Nanger dama*. The magnificent *Hippotraginae* are well represented in dry country: the Roan (*Hippotragus equinus gambianus*) in the Ubangi-Shari-Chad area, the Scimitar Oryx (*O. algazal*) and the rarer Addax with spirally twisted horns, around Chad.

The *Tragelaphinae*, mostly creatures of forested country, are particularly well represented. The bright red-brown, white-striped, Harnessed Antelope or Bush buck (*Tragelaphus scriptus*), with a bark like that of a dog, is widespread. *Limnotragus spekei*, with widely splayed hooves for life in marshes, and long coarse hair, is known in Gabon, the Congo forests, and Lake Chad. The larger, rare Bongo (*Boëcerus eurycerus cooperi*) is found in the more open Ouelle region, while *B. e. eurycerus* frequents forest from Gabon eastward (Fig. 26). The greater Kudu, most beautiful of animals, is known by the race *Strepsiceros s. cottoni* from Byaya, French Congo; and the largest antelope, the Eland, occurs in two races, *Taurotragus d. derbianus* with black neck, in north Cameroons, and *T. d. congolanus* from the Chad-Ubangi-Shari area. *Bovinae*. The Buffaloes of French Equatorial Africa range from the typical large black open-country form, *Syncerus caffer brachycerus*, to the smaller, red, forest form, *S. c. nanus*, which, according to Christy, are one species. Lastly, it is very interesting to note in this geographical unit of French Equatorial Africa, ecologically so very diverse, the presence of a typical Palaearctic animal in the form of a wild Barbary sheep (*Ammotragus lervia*) in the mountains of Tibesti. This area, lying to the north of the ill-defined boundary of the Ethiopian region, also contains Ethiopian species such as Baboons, Oryx, and Addax. *Giraffidae*. These are represented in the Chad area by *Giraffa camelopardalis peralta*, notable for the very pale coloration of its face and legs. Its nearest living relative, the Okapi of the Semliki forest, is stated by Grandidier to occur in the Kwango basin north of the Ubangi. The interesting family *Tragulidae* comprising the Chevrotains, of Asia and West Africa, is represented in the Cameroons by *Dorcatherium*, the Water Chevrotain, rich brown with white spots and stripes. Its feet are in a stage intermediate between the four toes of the pig and the two of the antelope. The pig family (*Suidae*) is exemplified by the renownedly hideous Wart hog (*Phacochoerus*), distributed all over open country in the Ethiopian region of Africa, and the forest-dwelling Red River hog (*Potamochoerus*) localized to West Africa. *Hippopotamidae*. There is only the one species of hippopotamus.

Ungulata. Odd-toed.

Rhinocerotidae are meagrely represented by the common rhinoceros which occurs to the north of latitude 8°. *Equidae* are not represented. Elephants are too well known to be discussed here: they occur from

the forest up to Lake Chad. The question of a real race of Pigmy Elephants has been disposed of by Dollman, who shows that there is no evidence of their existence. But a small race named by him *Elephas antiquus cyclotis* exists in the Gola forest of Sierra Leone and in the Cameroons.

Hyracoidea

The interesting 'Conies', curiously reminiscent of rabbits, are represented by forest-dwelling species of *Dendrohyrax*, whose ear-splitting screams from trees are so startling a feature of the night, and the rock-dwellers *Heterohyrax* and *Procavia*.

Edentata

The most primitive of the African mammals. They are exemplified by the 'Aard-vaark', known also by the misleading name of 'Ant-bear' (*Orycteropus*), a hideous, heavy-bodied, large-eared, long-snouted, almost hairless creature with long tail living in burrows and raiding termite hills, and by species of Pangolins (*Manis*), sometimes falsely called Armadilloes because of their scaly armour.

BIRDS

Only a few representative birds can be mentioned here.

The group shows particularly well the importance of the special environment to which a species is adapted and is hence often confined in its habitat. For example, for well-vegetated country Chapin gives the following habitats: (A) Primitive forest; ground and lower undergrowth, lower parts of trees, tree tops, clearings. (B) Second-growth woods; lower part near ground, larger trees. (C) Forest swamps and watercourses. (D) Edge of forest. (E) Savanna. (F) Gallery forest.

Struthionidae

Bannerman regards the existence of *wild* ostriches in south Adamawa and the lower Shari as unworthy of credence.

Pelecaniformes

The long-tailed small Cormorant, *Phalacrocorax africanus*, occurs on most African waters, and with it the Darter or Snake bird (*Anhinga*), so called because it often swims with only the extremely slender neck visible above water. The Pelicans are represented by the Rosy Pelican obtained on Lake Chad, and the common *Pelicanus rufescens*, smaller, with greyish plumage and pink back, found on the coast, the

main rivers, and Chad. The sight of a flock of pelicans soaring high in the sky is not easily forgotten, nor the stench of the nesting-places in trees.

Ciconiiformes

Ardeidae. There are a number of herons, of which the most noteworthy is *Ardea goliath*, a great handsome bird found singly along rivers and edges of swamps. A coastal species, found in mangrove areas, is *Demigretta gularis*, dark, with white throat. The great white egret (*Casmerodius*) with black legs is one of the birds likely to be seen on sandbanks, and the smaller Cattle egret (*Bubulcus*) is always to be found in open country attending cattle or herds of game to eat the disturbed insects. The Tiger-bittern (*Tigriornis leucolopha*), whose loud cry is one of the night noises of the forest, is one of the characteristic birds of West Africa. The curious Hammer-head (*Scopus*), a dark-brown bird with crest projecting in the opposite direction from the long bill, is always near water, and its enormous nest in a tree-fork is remarkable. The Storks, *Ciconiidae*, are well represented by residents as well as the migrants, the most striking being the Jabiru or Saddle-bill (*Ephippiorynchus*): its white body, black head, neck, and wings, and heavy red bill with black band and yellow shield at the base make it noteworthy. The dark Open-billed stork (*Anastomus*), not found in heavy forest, frequents river-beds seeking the large molluscs on which it feeds; it is known from the Shari and Gabon areas. The Marabout is of great importance as a scavenger and must never be shot: its heavy build, repulsive bald head and neck, and large bill make it unmistakable. A bird of open country, it occurs in the Chad area; when seen soaring high overhead its unpleasing profile is forgotten in the majesty of its flight. The Wood Ibis (*Ibis ibis*) is peculiar to West Africa: rather like the common white stork, it is distinguishable by its long, curved, orange bill. The true Ibises belong to the *Plegadidae*: the Glossy Ibis (*Plegadis*) and *Threskiornis*, the black and white Sacred Ibis, both occur in the Chad area. The widely distributed Hadada or Hagedash Ibis, dark glossy greenish-brown, with long down-curved beak, annoys sportsmen by its raucous cry 'Aa-aa-aa' as it flies away, having given the alarm to the game.

Anseriformes

Ducks and geese provide many migrant visitors, but there are characteristic residents of which Hartlaub's duck (*Pteronetta*) is

practically the only duck typical of the rain-forest and gallery forests: as large as a mallard, it is chestnut with black head and neck and pale blue wings. The best-known duck in Africa is *Dendrocygna viduata*, the so-called 'Whistling Teal', or white-faced tree duck, occurring in swamps or lagoons and nesting in trees. The beautiful multi-coloured Pigmy goose (*Nettion*) frequents reed-fringed swamps. Two conspicuous large geese are the Knob-bill or 'Comb' goose (*Sarkidiornis*), dark metallic green with white underparts, known from Chad and the Lower Shari, and the huge Spur-wing (*Plectropterus*), black and white.

Falconiformes

Birds of prey abound but are difficult to identify. The common Vulture is the small brown Hooded Vulture (*Necrosyrtes monachus*), with untidy ruff. The white Egyptian Vulture (*Neophron*) occurs in the Chad area.

Falconidae. The Black Kite (*Milvus*) calls for mention: it is a most valuable scavenger in villages. Its quavering cry and deeply forked tail readily distinguish it. Many hawks and falcons are found; among eagles three are specially noteworthy. *Stephanoaëtus coronatus*, the crowned Hawk Eagle, a bird of the top of the forest trees, feeds on monkeys and the tree hyraxes. A smaller eagle, *Lophoaëtus occipitalis*, is noticeable in savanna country: black, crested, and showing white under the wings in flight. The fishing eagle of the rivers (*Cuncuma vocifer*), beautifully coloured with white, black, and chestnut, and with a cry which is one of the features of a journey on the rivers, is widely spread and easily seen. The valuable Buzzards (*Buteo*), feeding on snakes, must be mentioned.

Galliformes

Phasianidae, the game birds, are very well known in Africa. There are numerous species of *Francolinus*, of which *F. squamatus* is the common Francolin of forests, and *F. bicalcaratus*, the double-spurred 'Bush fowl', inhabits the two types of country. The larger *Pternistes cranchii*, the red-throated Francolin, occurs near streams from Lower Congo eastwards. The dapper little 'Stone partridge' (*Ptilopachus*), like a bantam, occurs on rocky hills, widely distributed in open country. The Guinea-fowls, so characteristic of Africa, have their headquarters in the west. *Numida*, of open country, has a helmet on the head; *Guttera*, of forests, a crest of feathers. *Phasidus niger*, the black guinea-fowl with naked yellow head, occurs in the

remotest parts of forest in South Cameroon and Gabon. The recently discovered and wonderful African Peacock (*Afropavo*) has yet to be found in the French Congo (Fig. 53).

Ralliformes

Among the *Rallidae* the Nkulengu Rail (*Himantornis haemantopus*) is a typical bird of the rain-forest. Widely spread along forested river-banks is the Black Crake, with yellow bill and red legs, and there are moorhens of various sizes, some of which make queer grunting and crooning noises in the reed-beds. *Heliornithidae* contains the 'Fin-foot' (*Podica*), peculiar to West African waters, somewhat reminiscent of a small Darter. It dives with reluctance but is able to run swiftly through undergrowth. It is dark brown and green with white spots, short legs, and fringed toes.

Gruiformes

The only Crane characteristic of West Africa is the Crowned Crane *Balearica pavonina*, one of the most ornamental of birds with its graceful carriage, ornamental grey-brown and black plumage, yellow crest, and pink and white cheeks. It frequents open country near water and congregates in parties to perform regular dances: the booming cry before rain and the penetrating call note are characteristic. *Otididae*. Bustards are characteristic of open or even arid country: the great *Neotis cafra denhami* was described from a Chad specimen. The smaller 'Knorhaan' (*Eupodotis senegalensis*) and the black-bellied *Lissotis melanogaster* are widespread. *Jacaniidae*. One of the most familiar birds of the lily-covered edges of pools and quiet backwaters is the Lily-trotter (*Actophilornis*) whose very long toes enable it to run about over the water-lily leaves: it is brightly coloured with chocolate brown, greenish black, and cream.

Charadriiformes

The numerous Plovers and their kin can only be touched upon. The White-headed Plover (*Xiphidiopteryx albiceps*) with long yellow wattles below the eye is common on river sandbanks. *Hoplopterus spinosus*, the Spur-wing, conspicuous in black, white, and brown, occurs wherever there are open rivers or lakes. The Wattled Plover (*Afribyx senegallus*), grey-brown with black throat and yellow wattles, is a bird of thorn scrub. The extremely long-legged, black and white Stilt (*Himantopus*) is known from the Congo, Gabon, and Chad. *Glareolidae*. The 'Egyptian Plover' (*Pluvianus*), renowned for its



FIG. 53. *Adult Male and Female of the Congo Peacock (Afropavo congensis), after G. E. Lodge*

From *The Birds of the Belgian Congo, Part II*, by James P. Chapin, Bulletin of the American Museum of Natural History

supposed habit of entering the mouths of resting crocodiles, occurs in western Congo, Gabon, and Chad. It is a short-legged bird with black and white head, grey wings, a black V down the back, and buff underparts. *Laridae*. An abundant gull on Chad is *Larus cirrhocephalus*. Terns frequent the estuaries and lower reaches of big rivers, and of them the Skimmer (*Rhynchops flavirostris*) is particularly noteworthy: dark brown above, white below, with red legs. The bill, also red, is remarkable for being laterally compressed, with the upper mandible much shorter than the lower, which, as the bird flies over the water, ploughs the surface.

Columbiformes

The Sand-grouse (*Pteroclididae*) are typical inhabitants of arid country, and well known for their flights at evening to drink in large numbers. The Pin-tail (*Pterocles exustus*) and the four-banded (*Pt. quadricinctus*) are likely to be met in the Chad area. The *Columbidae* are well represented by numerous pigeons and doves. *Columba guinea*, a large speckled pigeon associated with *Borassus* palms; *Turtur afer*, the blue spotted dove, with its mournful song; *Oenea capensis*, the little long-tailed dove, and *Stigmatopelia senegalensis*, the Laughing Dove which is a crop raider, may be just mentioned. The extremely beautiful Fruit Pigeons (*Vinago*), green and yellow with red bills, are found some in forests, some in savanna, where they flock to the fruits of fig-trees.

Psittaciformes

The familiar grey parrot occurs in forests and is remarkable for the way in which it has rapidly spread from West Africa. Parrakeets (*Poicephalus*) are said to be troublesome raiders on crops of ground-nuts, and the smaller 'Love-birds' (*Agapornis*) destroy grain.

Strigiformes

Owls are numerous: two large species are *Bubo africanus*, the Eagle-owl whose deep soft notes 'Hoo - - - hm' with a pause between are commonly heard in savanna camps, and the forest-frequenting Fishing-owl (*Scotopelia peli*). There are smaller, eared, owls of various species.

Musophagiformes

The Turacos or Plaintain-eaters are magnificent birds characteristic of the Ethiopian region in which alone they are found. Large, noisy, sociable, they are soon noticed in forests as they leap from

bough to bough and boo and cackle quite unmistakably. The largest (*Corythaeola*) is deep blue with a plumed crest (Plate 28). Other crested species (*Turacus*) have the upper parts blue or purple and the crest green or white; *Proturacus* is green with a red crest. The crestless *Musophaga*, deep blue and red, have a large yellow shield on the forehead. These are all forest-dwellers: in savanna country *Crinifer* occurs, smaller and grey; *C. piscator* is found up to Chad.

Cuculiformes

The Cuckoos proper are well exemplified by *Cuculus solitarius*, the Red-breasted Cuckoo, whose call of three notes in descending scale commonly precedes the rains. Smaller species are the 'Bronze Cuckoos', *Lampromorpha*, green and copper above, white below, known as 'Didric' (*L. caprius*) or Klaas's cuckoo (*L. klaasi*), and species of *Chrysococcyx*, of which *C. cupreus*, the Emerald Cuckoo, is described as the most dazzlingly beautiful bird in Africa. Allied to the Cuckoos are Coucals, often, and wrongly, called 'Bush-pheasants'. *Centropus senegalensis*, the 'Fool Bird', skulks in thorn-bush and woodland; black and brown with large black tail. The characteristic bubbling call of one species is like the sound made by water being poured from a bottle; hence its name 'Bottle-bird'. A glossy purplish-blue species with bright yellow curved bill is *Ceuthmochares aereus*.

Coliiformes

The Colies, or Mouse-birds, are peculiar to Africa: about the size of sparrows but with long tails, they are grey or brown and all much alike. They cling to branches with the feet drawn up in front of the belly and creep about like mice. They will quickly destroy a ripe papai-fruit (paw-paw), eating in from the end.

Caprimulgiformes

Nightjars are plentiful in suitable open country. Two are noteworthy for remarkable plumes developed in the breeding season. *Macrodipteryx longipennis*, the 'Standard-winged' nightjar, develops an immensely long feather in each wing which streams behind the bird as it flies, and *Scotornis climacurus* has an exceptionally long tail.

Cypseliformes

Among the swifts only the charming little Palm-swifts can be mentioned: they have very narrow wings and a deeply forked tail, and nest on *Borassus* palms in open country, or oil palms in forest.

Coraciiformes

This group contains some of the most brightly coloured and showy birds. *Coraciidae* comprises the Rollers. *Coracias abyssinicus*, brilliantly blue with long outer tail feathers, occurs everywhere in thorn scrub; *Eurystomus afer*, less brilliant but handsome in purple brown and dark blue, is an extremely noisy, pugnacious bird. Rollers are entirely insectivorous and doubtless do much to keep down locusts and grasshoppers. *Upupidae*, or Hoopoes. The African hoopoe, *Upupa senegalensis* (the name Upupa is derived from its triple cry), is a conspicuous bird of dry open country: cinnamon-coloured with long black-tipped crest, banded black and white wings and tail. The *Phoeniculidae*, Wood-hoopoes, are peculiar to Africa. *Phoeniculus guineensis* or 'Kakelaar', a long-tailed glossy blue-black bird with a long red bill and a long tail with a white bar, is found up to Chad. *Scoptelus brunneiceps*, without white, is only known from the forests of Cameroon and Belgian Congo.

Alcedinidae contains the Kingfishers, of which there are many. *Ceryle rudis*, the pied kingfisher, hovers like a kestrel over the water of every open river. *Megaceryle maxima*, the largest African species, is slate-coloured with white throat and black bill: other genera, brilliantly coloured, are *Corythornis*, the malachite kingfisher, *Ispidina*, the pigmy, and *Myioceyx*, the red-headed dwarf kingfisher. Other species, of genus *Halcyon*, are frequenters of bush and feed on grasshoppers: *H. senegalensis* is commonly seen in gardens, where its chattering notes on a descending scale attract attention as much as its brilliant light-blue plumage and red upper part of the bill. *H. leucocephala* has chestnut belly and the bill all red; *H. malimbicus* is more addicted to forest and has a blue breast. The Bee-eaters (*Meropidae*), most graceful of birds, abound. *Merops malimbicus*, dark grey above and rosy pink below, is essentially a river bird: *M. nubicus*, with exceptionally long tail, is carmine above and below with head greenish-blue: it is one of the birds sure to be attracted by a bush fire, to capture the routed insects. *M. albicollis*, an exceedingly common bird breeding near Chad, is blue-green with white and black head and neck. Smaller bee-eaters without the long outer tail feathers are species of *Melittophagus*. *Bucerotidae*, the Hornbills, are large ugly birds with enormous bills, often with a 'casque' on top of it. The largest species, *Ceratogymna* and *Bycanistes*, frequent forest: black, or black and white, and with raucous cry and noisy flight, they soon attract attention. Smaller grey species occur in more open country

(*Lophoceros*). A huge species, as big as a turkey, *Bucorvus abyssinicus*, the Ground Hornbill, stalks about in open country and utters deep booming cries; black, with bare throat and white wing feathers, it is an ugly bird.

Piciformes

The Barbets (*Capitonidae*) are conspicuous, rather stoutly built birds with large bills and are often marked brightly with red. They are sure to attract attention, especially *Pogoniulus*, whose wearisomely reiterated cry has earned for it the name 'Tinker-bird' or 'Copper-smith'. Others have bleating cries. The *Indicatoriidae* are insignificant in appearance, but their well-known habits of attracting attention by conspicuous behaviour and leading the passer-by to a bees' nest has earned for them the name 'Honey-guides'. The *Picidae* are the well-known Woodpeckers: *Mesopicos goertae*, the best known outside the forest belt, is grey, with back and wings golden olive and rump scarlet.

Passeriformes

Lastly comes this vast assemblage, of which only a minute fraction can even be mentioned. *Eurylaemidae*, or Broadbills, were until recently thought to be confined to south-east Asia, but it has since been shown that *Smithornis* belongs to this family, and the discovery in the north-east Belgian Congo of *Pseudocalyptomena graueri*, a typical Broadbill, has settled the question. It has yet to be found in the French Congo, but might turn up in the Ouelle forests. *Pittidae*, Ant-thrushes, are brightly coloured frequenters of the ground in forest, where they prey upon ants. *Motacillidae* or wagtails are exemplified by the charming black and white *Motacilla aguimp vidua*, which frequents verandas and has a sweet song.

Timaliidae, or Babblers, are noisy birds of which some species occur in forest and others in open country; the latter are very conspicuous as they go about in parties with loud chatterings, earning the name 'Seven sisters'. The Bulbuls (*Pycnonotidae*) are well known owing to the call of one of the commonest species, interpreted as 'Quick, doctor, quick', but others in the forest have quite melodious songs.

The important family of Flycatchers, *Muscicapidae*, has many delightful representatives: *Platysteira*, black and white with scarlet eye-wattles; *Tchitrea*, the 'Paradise Flycatcher', brown and black

with extremely long white tail plumes when adult, and the much rarer *Erannormis*, of light silvery blue with a long tail, often spread out fanwise.

The *Turdidae* contains thrushes of various types such as *Neocosyphus*, the forest-frequenting Ant-thrush; *Monticola*, the rock thrush of the opposite type of country; *Oenanthe*, the wheat-ear of the arid country; and *Cossypha*, which sings in thick bush or forest as melodiously as any bird of temperate climes. The *Sylviidae* or Warblers can only be mentioned, also *Hirundinidae*, the swallows, and *Campephagidae*, the 'Cuckoo-shrikes'.

Dicruridae, the Drongos, is a family sure to attract attention. The species are black, or greenish- or bluish-black, often glossy, and perch in conspicuous places from which they dart on their insect prey or attack birds, often much larger than themselves, which come too near. Some have the tail feathers diverging outwards in very characteristic fashion.

The Shrikes, *Laniidae*, with the Helmet Shrikes, *Prionopidae*, also are bound to attract attention. Always conspicuous by their habits, they prey upon insects and frequently perch in exposed positions. The males and females of some species live in close association in pairs, and often the pair produces a joint call of melodious notes so well timed that it is difficult to believe it is not produced by one bird only. They are powerful birds for their size, with strongly hooked tip to the beak. A familiar garden bird is *Laniarius erythrogaster*, of velvety black with hibiscus-red belly. *L. ferrugineus* is known as the 'Bell-shrike', the two birds uttering different bell-like notes to make a complete song. *Dryoscopus gambensis*, one of the 'Puff-backs', is common on tall trees around villages. Species of *Chlorophoneus* are more addicted to forest or thick bush, and have plumage partly green. *Malaconotus poliocephalus* is a very large shrike, grey-headed, with bright green back and white band in front of the eye.

The beautiful *Oriolidae*, well known by the Golden Oriole *Oriolus auratus* which likes thickly wooded country, or the black-headed oriole, *O. brachyrhynchus*, are likely to be noted.

A noticeable family is the *Nectariniidae*, or Sunbirds, which in Asia and Africa so far as appearance goes take the place of American Humming-birds, but they do not hover in the same degree. They have long slender bills and thrust them into flowers for nectar, red flowers especially attracting them; the males are often brilliantly metallic, and showy with red and green.

Zosteropidae is a family of small birds characterized by a ring of

small feathers round the eye, whence they derive the name 'White eye'.

The *Ploceidae*, or Weaver family, contains birds likely to be the first noticed by a newcomer: of sparrow-like build, they make enormous social nests whence continuous chattering of a deafening character proceeds all day long. Species of *Malimbus* are forest-dwellers, black, with parts red. The typical *Ploceus* are black and yellow in the adult males; females and young nearly always differ. *Ploceus cucullatus* is the common Village Weaver, head and throat black, rest of upper-side black and yellow, under-side yellow tinted with chestnut. A very beautiful bird in adult male plumage is *Euplectes (Pyromelana) hordacea*, of savanna country, which has brilliant fiery red plumage: females and young are sparrow-like. The well-known Whydah birds, *Coliuspasser*, inhabit savanna where they can display the long, floating, black tail feathers in the breeding season: two common species are black with a yellow or orange shoulder-patch. The *Estrildinae* section of the Ploceids contains smaller birds, of which the 'Cordon Bleu' is a common example (*Uraeginthus bengalus*), light brown with rump and tail bright blue, sides of head and throat bright blue, and a dark crimson ear-spot: like the 'Waxbills' (*Estrilda*) it feeds on grass-seeds. The breeding male of *Vidua macroura*, a dumpy little black and white bird with red bill and some extremely elongated tail feathers, is noticeable in grass-land as he flits jerkily with little chirps before a crowd of insignificant young and females. Another genus, *Lagonosticta*, is known as 'Fire-finches' from the bright red tints of the breeding males.

Eulabetidae, the 'Glossy Starlings', now separated from the true starlings (*Sturnidae*), contains *Lamprocolius* and *Lamprotornis*, birds of about the size of a starling but with long tails, and parts, at least, of the plumage glossy metallic green or blue. Like true starlings they bathe readily in gardens, when they form a beautiful sight in the sun. *Onychognathus morio*, the red-winged starling, inhabits bush-clad hills or cliffs and curiously suggests a *Musophaga* on a small scale when seen among trees. *Buphagidae* contains the notorious 'Ox-pecker' (*Buphagus africanus*), a dark brown clumsy bird with a yellow, red-tipped bill, which clambers about over grazing cattle or antelope.

Lastly, the *Corvidae*. *Corvus albus*, the Pied Crow, is found around human habitations all over the Ethiopian region; it is glossy purplish-black with a wide white band. *Corvus corax ruficollis*, the brown raven, occurs in the Chad area.

REPTILES

Chelonia

There are three families of Tortoises. *Testudinidae* contains the remarkable *Kinixys*, peculiar to the Ethiopian region, with the posterior part of the carapace hinged so as to close down: *K. erosa*, of the rain-forest, has a forked anterior extremity, like a head-rest, from the plastron. *Testudo* is characteristic of savanna. *Pelomedusidae* comprises the freshwater tortoises: *P. gabonensis* is characteristic of the entire rain-forest, *P. galeata* stays outside. *Sternothaerus derbianus* may have a shell nearly one foot long.

Crocodylia

Crocodiles are by no means plentiful in the Congo basin and are hard to see in the muddy brown water. *Crocodylus niloticus* is possibly not common because it is adapted to dry sunny basking-places and requires them for its eggs, whereas the true West African species, *Crocodylus cataphractus*, the long-snouted Crocodile, and *Osteolaemus*, embed their eggs in vegetation which by fermenting produces the heat required. *C. cataphractus*, which may reach 12 feet, is the predominant species and is purely a fish-eater: *C. niloticus* probably never exceeds 16 feet. *O. tetraspis* is an estuarine species, its greatly elevated nasal region allowing it to breathe in choppy water. *Osteoblepharon osborni* is a small species probably never more than 5 feet long, frequenting the smaller streams in the forest.

Lacertilia

Geckonidae. The Geckos are nocturnal arboreal lizards furnished with disks or pads on the feet by which they can cling and run upside down like flies. *Hemidactylus mabouia* is a house-gecko more or less confined to the coast: *H. brookii*, a virile Sudanese species, has spread widely and is the commonest gecko in Ouelle. *H. fasciatus*, with five dark transverse bands, occurs in the Cameroon forests. *Lygodactylus picturatus* is a small species about 3 inches long which inhabits trees in the savanna, of which the thick rough bark protects it from bush fires.

Agamidae. The lizards of this family are a conspicuous group with heads forming a rather short triangle. The brilliant colours of the males of the exceedingly common *Agama colonorum* attract attention: the head is of shades varying from rust brown to flame scarlet according to the locality, the body grey to bright blue, the tail greyish at base, the rest rusty red. The females are dull coloured.

Varanidae. The 'Monitors' are exemplified by the huge *Varanus niloticus*, occurring all over Africa (except Barbary), which is such an important enemy of the crocodile. Frequenting the waterside it rushes into it when alarmed and as it crashes through the undergrowth may easily be mistaken for a small crocodile. The tail is flattened from side to side for swimming. The eggs are laid in the kind of situation chosen by *Crocodilus niloticus*.

Lacertidae contains graceful lizards which are more addicted to forest than the Skinks, or the *Agumidae*. *Holaspis guentheri*, a shy species of the forest, longitudinally striped with conspicuous yellow markings, is so remarkably adapted to arboreal life that it can glide along the under-side of a smooth bough. *Lacerta echinata*, of the rain-forest, has a spinous base to the tail.

Scincidae is a numerous family of rather varied forms, some long and slender, some stumpy and shorter-tailed; every degree of degeneration of legs is shown, down to complete absence. A typical example is *Mabuya quinquetaeniata*, extremely common in various colour phases about villages in the Sudanese province: *M. perroteti* reaches a foot or more in length. Species of *Lygosoma* occur in forest or open country, and one of the latter in the Cameroons is the author of 'a ghostly whistle that can be heard for over a mile'. *Ablepharus* comprises little species seldom exposing themselves to light and moving about through the grass more like snakes.

Amphisbaenidae contains completely legless, worm-like creatures feeding on termites and found more beneath the surface than on it.

Chamaeleontidae. Some Chameleons, such as *Ch. owenii*, with triply horned snout, are confined to true forest: on the other hand, *Ch. gracilis* has a wide range encircling the forest and *Ch. dilepis* occurs mainly in open country but is also found well within rain-forest. *Rhampholeon boulengeri* is a forest species with stumpy tail remarkable for its extremely leaf-like appearance in every colour phase.

Ophidia

Snakes are, of course, numerous in species in French Equatorial Africa, more especially as the territory embraces all kinds of environment.

Typhlopidae. These burrowing snakes with short, spine-tipped tail, often found in termite hills, are easily recognized by the small head and smooth scales. It is interesting to compare them with similar lizards (*Amphisbaenidae*) and Amphibia (*Caeciliidae*) living

under the same ecological conditions. Two species occur only in rain-forest; there is one in the Sudanese region.

Boidae. This contains the Pythons, represented by the great *P. sebae* of 20 feet or more in length, ranging widely in the forest and Sudanese provinces, and *P. regius* averaging about 5 feet, of the latter area.

Colubridae. The following are a few examples, non-poisonous. The fish-eating *Hydraethiops melanogaster* is confined to rain-forest. The common *Boaedon fuliginosus*, dark grey above, white below, occurs in open country. *Chlorophis* contains very slender, bright green arboreal snakes, often found swimming. *Scaphiophis albopunctatus* has the snout sharply pointed, almost beaked, owing to the development of the rostral shield for burrowing purposes. *Dasy-peltis* contains a species of rain-forest and another of savanna, both remarkable for their capacity to eat large eggs which when in the gullet are broken against a series of special projections from the vertebrae. The next group, slightly poisonous, with fangs at the back of the mouth, is exemplified by the widely distributed 'Boomslang' (*Dispholidus typus*), an arboreal savanna species of very varied colouring, of 5 feet or more in length, black, brown, or green. It has larger eyes than usual, and markedly convex head.

The *Elapidae* are deadly poisonous snakes, but only a few can be mentioned. *Naja*, the Cobras, so well known in India, contains equally well-known African species, of which *N. melanoleuca*, the Black or Black and White Cobra, reaches a length of over 6 feet. Entirely black above, it has the throat and sides of the head light yellow, with black transverse bands on the belly increasing in width until the posterior three-quarters are entirely black. It is a forest species, partially aquatic.

The 'Spitting Cobra', *N. nigricollis*, occurs in savanna; it is very variable in colouring from black to green, but the scales are less polished than in *N. melanoleuca*: it has developed to a high and dangerous degree the habit of spitting venom at the eyes of an assailant. The genus *Dendroaspis* (or *Dendraspis*) contains very deadly slender snakes of great length and arboreal habits; they are popularly styled 'Mambas': examples of 14 feet long are known: they may be black or green: their swift movements have given rise to legendary tales of horror.

Viperidae. The characteristic broad head of vipers is well illustrated by the 'Puff-Adders', peculiar to the Ethiopian region: very stout-bodied, short-tailed, sluggish species; the name refers to the

snake's power of inflating itself, the deflation being accompanied by loud hissing. *Bitis arietans*, less beautifully coloured than the other two, is not so much a forest species; it may reach a length of 6 feet. *Bitis gabonica* reaches the same size, but is most beautifully marked with a carpet pattern of purples, browns, or yellows: like the horned species (*B. nasicornis*) it frequents forest. The horned species is smaller; it also has a wonderful colour-scheme which is by no means conspicuous among the varying lights and shades on the floor of the forest.

One other viper must be mentioned: *Causus*, containing several species of wide distribution. They are the only vipers which, instead of small scales, have large 'shields' upon the top of the head, and hence resemble non-viperine snakes. *C. lichtensteinii* is characteristic of rain-forest.

AMPHIBIA

Caeciliidae

These worm-like burrowing creatures, with short tail and slimy skin, live in moist ground and are likely to be found in the forest.

The tailed Amphibia, or *Urodela*, are not represented in the Ethiopian region.

Anura

The *Aglossa*, or tongueless frogs (*Pipidae*), known only from tropical South America and Africa, are represented by several species of *Hymenochirus* and *Xenopus*. *H. boettgeri* occurs in forest; it has half-webbed fingers and incompletely webbed toes with claws on the three inner toes. *X. laevis*, of open country, and *X. tropicalis* (= *calcaratus*), commonly known as 'Clawed toads', have broadly webbed feet but fingers not webbed; the first three toes with sharp horny nails. They spend all their life in water, often in quite small water-holes.

Bufonidae, or Toads, comprise several species of which *B. regularis* occurs all over Africa: *B. superciliaris* is the most striking species, but is confined to rain-forest. The *Ranidae*, or true frogs, contain numerous species of ordinary type, as well as tree-frogs. *Phrynobatrachus perpalmatus* is essentially a water-frog and has extensively webbed feet: *Ph. natalensis* is very widely distributed outside rain-forest. *Rana occipitalis* is a conspicuous river-frog of large size, feeding on smaller frogs. *Trichobatrachus* is a remarkable genus, known as 'Hairy Frogs', discovered in the Gabon area, having the flanks

and a strip of the thighs covered with long fine processes of skin (Fig. 29). *Chiromantis*, one of the tree-frogs with adhesive disks on the toes, deposits its eggs in a foamy mass on leaves of trees standing in water; and the young tadpoles are presumably washed down by rain. *Hyperolius* contains abundant species of tree-frogs, and *Megalixalus* is another well-known genus. *Brevicipitidae* contains a genus *Hemiscus* with pads on the sole of the foot for digging.

PISCES

Only the freshwater fish can be mentioned: since few fish are well enough known to have popular names, this survey must necessarily be very brief.

Polypteridae

These antique air-breathing fish are found in swamps and flooded areas or about rocks in the main river. Long and thin, covered with slimy gelatinous coat, they have a row of separate fins down the back to the base of the tail which has a simple rounded tail-fin (Plate 30).

Lepidosirenidae. *Protopterus*, the other African 'Lung-fish' so common in the Nile basin, is not widely spread in the Congo. Much larger than *Polypterus*, it has filamentous pectoral fins and a continuous fin all along the posterior part of the body, above and below. The American Expedition to Belgian Congo obtained it only on the main river above the Ubangi mouth. It is renowned for passing the dry season in a cell of mud in a dried-up swamp.

Mormyridae are peculiar to tropical Africa and the Nile: peculiar fish with very small mouth often at the end of a down-turned snout: they are weakly electric, and very slimy (Plate 30). The young are very abundant in riverside swamps and much desired as food. One species, *Pantodon buchholzi*, leaps in shoals from the water so as to earn the name freshwater flying-fish. A large eel-shaped species of *Gymnarchus*, 5 or 6 feet long, makes a floating nest in the dense grass of the Lake Chad swamps over which the male keeps guard so fiercely that it is much feared by natives when searching for the eggs.

Clupeidae. Species of *Pellonula* occur in the river in the vicinity of Stanleyville in immense shoals near the shore and are taken by the thousand in seines: they have a transparent appearance.

Characinidae. *Hydrocyon lineatus* has such formidable teeth that the natives call it 'Water leopard', though it is not known to attack bathers. *Distichodus fasciolatus*, the most abundant of its genus, and

D. maculatus swim in shoals near the bottom of deep muddy pools. Their yellowish fatty flesh is more relished by natives than by white men.

Cyprinidae contains 'Barbels' such as *Labeo longipennis*, often caught in traps at rapids, and excellent eating, and *Barbus holotaenia*, very common in schools at the edge of the river and caught on hooks.

Siluridae contains the well-known 'Cat-fishes', usually with large flat bony heads and long 'feelers' around the mouth. Many are much sought after for food. Species of *Clarias*, common in pools and swamps rather than open water, are among the best food-fish of the Congo. *Heterobranchus longifilis*, described as a 'loggy, inert sort of fish which is very good eating', has accessory respiratory organs at the back of the head. *Chrysichthys* reaches a large size and the species are captured on baited set lines, often in rapids or stony reaches of the river. *Malopterurus electricus* is the well-known 'Electric fish': it is a stumpy, thick fish with short rounded tail and small fins, and thick, blubber-like skin. The shock produced can be strongly felt through a thick leather sole if the foot is placed on the fish.

Cyprinodontidae contains the small *Haplochilus*, well known for their value in destroying mosquito larvae. *Serranidae* contains the huge Nile perch, *Lates niloticus*, found widespread, even in Lake Chad, and by white men considered the best food-fish of the Congo.

Cichlidae is a group of which far the greater number occur in the great lake systems; outside Africa there are comparatively few, and only in tropical America. Related to the Perches they are a recently evolved, specialized group. Many species exist, some of great food value, in genera *Tilapia* and *Haplochromis*. A remarkable and well-known family is *Anabantidae*, the members of which, known as 'Climbing Perch', are able to live out of water and may even be found on trees.

Ophiocephalidae contains long thin 'Snake fishes' which, provided with an accessory superbranchial cavity, can utilize atmospheric oxygen. *O. obscurus*, seen in the water from above, deceptively resembles *Polypterus*; the dorsal fin, however, is continuous. *Mastacembelidae* contains even slenderer, eel-like fish of carnivorous habit with sharp-pointed head, the back spiny anteriorly, then with a continuous fin passing right round the tail to the ventral surface.

Tetodontidae. These fish are remarkable for their power of inflating themselves into a ball, and can make a rasping noise. The skin is used by the natives for polishing wood.

Lastly, a most characteristic inhabitant of mangrove swamps is one

of the *Gobiidae*, *Periophthalmus*, which climbs and skips about over the roots, able to secure the oxygen it needs by dipping the end of the tail in water. The pectoral fins are used like arms, and the whole appearance is very unfishlike.

INVERTEBRATES

It is impossible to do more than glance at a few invertebrates, commencing with *Arthropoda*. The *Crustacea* are well represented in fresh water by crabs (*Potamonidae*) which may, during humid periods or in wet places, be found out of the water altogether: they are sold for food in native markets. The small 'Water flea', *Cyclops*, when swallowed in untreated water is harmful, as it carries the larval 'Guinea-worm': it is easily kept back by straining water through a handkerchief.

The large group *Arachnida* commences with scorpions, of which some of the largest species are found in West Africa. Some prefer savanna, some forest. The *Araneae* comprises the spiders. The giant *Nephila* are common in forests, where their webs of several feet in diameter may be strong enough to detain small birds. Brightly coloured 'Thorn-backs', with strong spiny projections (*Gasteracanthinae*), sit freely exposed on their webs. Some small spiders mimic ants so deceptively in shape and movements as to deceive experienced field naturalists.

Solifugae are distinguished from spiders by the obviously segmented abdomen: *Galeodes* and *Solpuga*, nocturnal in habits, with enormous 'fangs' (*chelicerae*), have long, fine, sparse, golden hairs. They run very swiftly and are much disliked by the uninitiated: they may sometimes be seen during the day burrowing in light soil or sand. 'Tarantula', sometimes applied to these, should be reserved for spiders.

Acarina is an important group containing Ticks and Mites: the former are notorious disease-carriers. A very large mite of bright scarlet, quite harmless, is often called 'Beetle-mite' from its large size: it crawls on the ground in wet seasons and is frequently brought home by travellers.

The next division of the *Arthropoda* (*Myriapoda*) contains the two different types, Centipedes and Millipedes. The former have much flattened bodies, the front pair of legs turned forwards to form poison-fangs, and not more than one pair of legs to a segment. *Scolopendromorpha* contains the large and much-dreaded species, short-bodied compared with the immensely long and thin, harmless *Geophilomorpha*, sometimes luminous at night. The Millipedes, *Spiroboloidea*,

with two pairs of legs to a segment, and cylindrical bodies of shining armour, are quite harmless. Large species may reach 8 inches in length and almost 1 inch in diameter.

Insects, the most numerous group of animals in the world, can only be briefly exemplified by a few notable forms. The *Orthoptera*, comprising Cockroaches, Crickets, Locusts, and Grasshoppers, are notorious. Species of 'Praying Mantis' with formidably spined, clutching front legs, and 'Stick Insects' are other members of this order. Termites (*Isoptera*), so commonly misnamed 'White ants', are close relations of *Orthoptera* and have nothing to do with true ants (*Hymenoptera*). Widely known from their ravages in wood, especially timbers foreign to the country, they can only be mentioned here. It may be pointed out that some species, in open country, attack blades of living grass. Swarms of adult male and female winged termites, emerging during the rains from holes in the ground, and subsequently discarding their wings, afford food to every kind of predator, including man himself.

The order *Odonata*, or Dragon-flies, contains many showy species frequenting sunlit streams in forest or the neighbourhood of open water. All may be regarded as beneficial and harmless to man: the small *Agrionidae* are particularly valuable as preying upon mosquitoes. Larger *Calopterygidae* in the dark forest often have wonderfully iridescent wings: the great *Aeshnidae* and *Libellulidae* always attract attention: some species migrate across the sea in large numbers. *Neuroptera* is an ancient stock among which *Myrmeleonidae* call for notice. The flat larvae are known as 'Ant lions'—they excavate conical pits in loose, dry sand, at the bottom of which they lie in wait for ants to tumble in. The adult insects resemble dragon-flies except for conspicuous antennae: they fly feebly and are often disturbed from rank grass under a shady tree.

Hemiptera comprises the vast assemblage of sucking 'Bugs', often malodorous and brightly coloured. One family, *Reduviidae*, in which the proboscis is bent in a curve under the head instead of lying flat, contains predaceous species often of large size which, if incautiously handled, plunge the proboscis into the captor's finger, producing intense pain. The noisy tree-frequenting 'Cicadas' belong to *Hemiptera*; also the 'Cotton Stainer' and 'Bed bug'. Aquatic species (*Corixidae* and *Hydrometridae*) must play an important part in keeping down mosquito larvae.

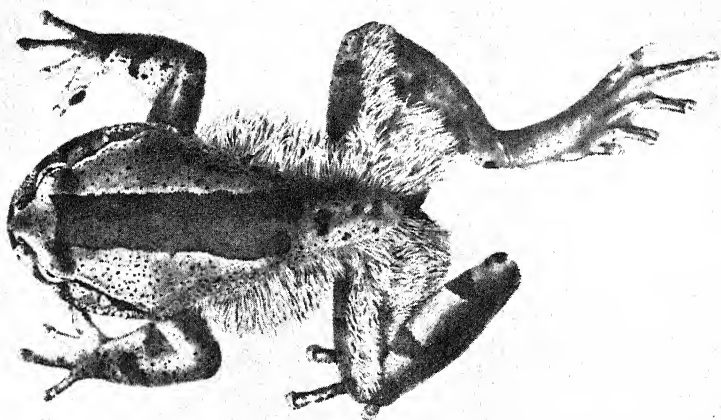
The butterflies and moths constitute the order *Lepidoptera*, of which the most characteristic of the Ethiopian region are the brightly

coloured *Acraeidae*: butterflies of red, yellow, and black, the females often white and black. The larger species, genus *Bematistes* (= *Planema*), mostly frequent forest and are peculiar to Africa: smaller *Acraea* abound in open country also. These butterflies are relatively distasteful to birds and less eaten by them than species of other very different groups. Some of the latter deceptively resemble the former and thus sometimes escape destruction: this is the phenomenon of 'Mimicry' (Plate 31), much studied for its bearing on the theory of Natural Selection. A sub-group of the family *Lycaenidae* (*Lipteninae*), confined to the Ethiopian region, containing many mimetic species, is particularly well exemplified in the Congo forest. Among moths there are many handsome diurnal species of families *Hypsidæ* and *Agaristidae*. Certain caterpillars call for notice: the huge, often spiny *Saturniidae*, of which some are favourite articles of native diet, produce enormous moths with transparent windows on the wings, and often large eye-like markings on the hind wings. *Limacodidae* is a family with peculiar larvae often not recognizable as caterpillars owing to their legless, slug-like appearance. Many have sharp, poisonous spines which inflict a painful 'sting' if the skin comes in contact with them.

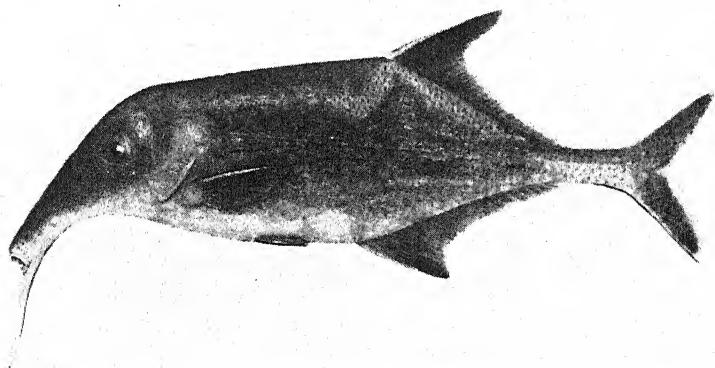
The order *Coleoptera* contains the insects readily recognized as 'Beetles' by most people: among them may be found insects larger than the smallest mammal, or smaller than the largest Protozoon! The Congo forest provides the well-known 'Goliath beetle' (*Cetoniidae*) and in savanna country may be found enormous Coprids attracted by elephant's droppings. The wood-boring larvae of Longicorns produce some extremely fine beetles, of graceful shape, with elongated antennae. The actively predacious, often black and nocturnal, *Carabidae* if of large size should be handled with care as they eject a volatile fluid causing unpleasant burning sensations. Fire-flies are poorly represented: African species are related to the common 'Glow-worm'. Game hunters' trophies are often destroyed by the larvae of *Dermestidae* ('Bacon beetles'), and the wood-destroying larvae of *Bostrichidae* and *Lyctidae* ('Powder-post beetles') reduce to dust very quickly any temporary bush hut.

Hymenoptera is a vast order containing saw-flies, Ichneumon flies, ants, wasps, and bees of considerable importance to man.

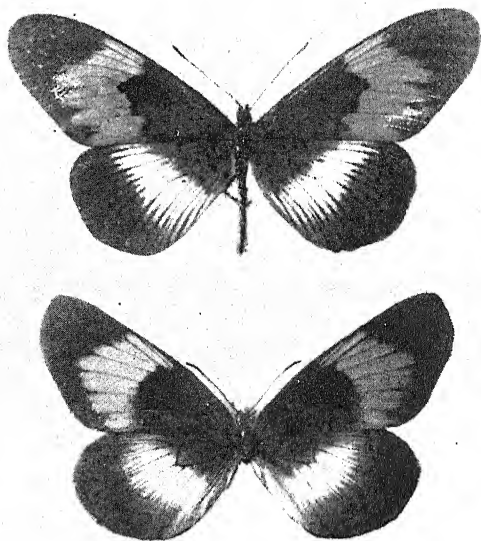
'Ichneumon flies' lay their eggs in other insects, at different stages of their development, and hence destroy many. Since the female often has to reach its prey at a depth in earth or wood she possesses a long ovipositor, sometimes reaching a length of several inches through



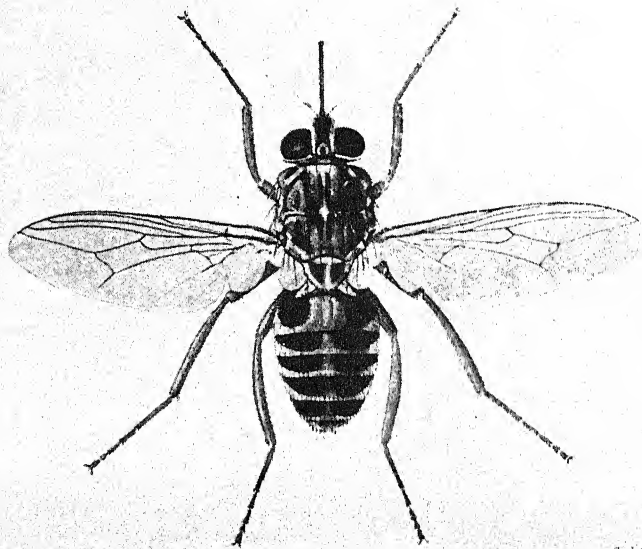
29. *Hairy Frog* (*Trichobatrachus robustus*, *breeding male*)



30. Above. *A Typical Mormyrid*
Below. *The Air-breathing Polypterus*



31. *Mimicry of a common and unpalatable Butterfly (top, Acraea alciope female, form aurivillii) by a very rare Liptenine Lycaenid (Mimacraea eltringhami)*



32. *Tsetse Fly*

which the egg is deposited within the unseen prey. Many minute, metallic green *Chalcididae* may be reared from the egg of a butterfly!

Ants can only be discussed in a few remarks here. The most primitive group, *Ponerinae*, contains a large black species which goes about in small parties and raids termite nests. When disturbed on the march they produce a 'hissing' noise. Their name, *Megaponera foetens*, is unfortunate, for the real odoriferous ant is the much larger, also black, but solitarily wandering *Paltothyreus tarsatus*. This, if stepped upon, emits a smell of bad eggs. Both these large ants can sting formidably. The Doryline ants are notorious from the habits of the 'Driver ants' (*Dorylus*), reddish-brown blind species with fearsome mandibles but no sting, which have no permanent habitation but live by hunting. The vast hordes, comprising individuals of very different sizes, when hunting will drive out or destroy every living thing. When on the march in close column they are negligible if left undisturbed. The group *Myrmicinae* contains an extremely annoying ant to the traveller in the forest, *Macromischoides*. This small black species constructs its nest of fibrous material between leaves of trees: if disturbed they rush out aggressively and swarm over the passer-by, inflicting most irritating stings as well as biting. Another arboreal ant, *Oecophylla* (*Formicinae*), larger, of light brown colour with long legs, makes nests by fastening leaves together with silk spun by larvae held for the purpose: it bites feebly, but does not sting.

Wasps have been fully considered by Bequaert, who reports that as regards distribution there is no marked difference between the various subdivisions of the Ethiopian region. Large black and yellow species of *Synagris*, a genus peculiar to the region, are among the commonest wasps; their mud nests are filled with caterpillars. *Eumenes maxillosus*, a fearsome-looking black species with red tail and jaws of huge size, is not fierce: its mud nests are stocked with caterpillars. More to be feared are the social *Belonogaster*, with very long waist; they are peculiar to the Ethiopian region. Their parchment nests hang by a pedicle from branches or rocks and if one is too nearly approached the wasps fly out and inflict very painful stings. If, however, the nest has been built from the commencement in a place frequented by passers-by, such as a passage, or veranda, the writer has found that the wasps are not aggressive.

Other wasp-like creatures, usefully known as 'Fossors', often attract attention by their habits. Each female lives a solitary life: she digs a hole and buries in it other insects stung to helplessness, upon which her own egg is laid. *Pompilidae*, usually blue-black and often

very large, prey upon spiders: they make a loud rattling noise in flight. Some of the *Sphegidae* build mud nests, and the song of *Sceliphron*, a high-pitched buzz made while this black and canary-yellow insect works feverishly, will often reveal a mud nest, stuffed with spiders, behind books or in a fold of curtain. *Sphegidae* prey mostly upon Orthoptera and caterpillars; *Bembecidae* upon flies—often the blood-sucking *Tabanidae*, or *Glossina*, the tsetse-flies—and require loose sandy soil since they revisit the burrows frequently with fresh supplies. *Mutillidae* comprises ant-like insects with wingless females, often brightly coloured red, black, and white. They are parasitic upon other Hymenoptera, and sting painfully if handled.

Lastly, Bees (*Apoidea*). The wild honey-bee is well known to natives. Great 'Carpenter bees' bore holes in timber in which they make their nests; they are quite inoffensive. Very annoying are the small *Melipona*, or 'Sweat bees', which in the dry season crawl over the traveller's face or hands in search of moisture, tickling intolerably, and leaving an unpleasant odour if crushed.

The last order of insects, *Diptera*, or two-winged flies, is of vast importance to man. Among the less specialized *Nematocera* are the small, moth-like, hairy-winged *Psychodidae*, of which *Phlebotomus*, commonly known as 'Sand-fly', sucks blood and causes a debilitating fever. The mosquitoes are so adequately dealt with in Chapter VI that little need be said here. A type little known, and of considerable beauty, is the subgroup *Megarhinini*, whose larvae feed upon other mosquito larvae. The adult is of very large size for a mosquito: the long curved proboscis is only used for feeding from flowers, on which the insect, handsomely metallic green, may be found sitting before the sun is high. *Chironomidae*, or non-biting gnats, often emerge in great clouds from large bodies of water, and in the lake region are used for food. An allied family, *Ceratopogonidae*, contains the troublesome biting 'midges'.

Simuliidae contains small, stoutly built flies known in some places as 'Black flies' or 'Buffalo gnats': they are voracious blood-suckers and may render the country near the rapid streams in which the larvae live quite uninhabitable.

The section *Brachycera* contains the very important *Tabanidae* ('Horse-flies' or 'Mangrove flies') of which the females are notorious blood-suckers, some of them carrying diseases to man and domestic animals. Species of *Pangonia* often have very long probosces projecting forwards: in the others it is always very short. *Tabanus* and allied genera are large and handsome flies: *Haematopota* contains

smaller species which alight very quietly to feed, and fold their dappled wings along the side of the body. The larvae of *Tabanidae* are carnivorous and live in wet mud.

Asilidae, or 'Robber flies', are hairy, long-legged, slender-bodied flies of predaceous habit; they have a short proboscis, but are innocuous to man. A definite perch in a prominent place is chosen from which to dart out at passing insects, which are captured in flight.

The immense numbers of flies of the group *Calypterae*, embodying the typical 'House-fly' and its blood-sucking relative *Stomoxys*, must be passed over. Many are of great value in destroying caterpillars, grasshoppers, and other insects. The species of blood-sucking tsetse fly (*Glossina*), however, call for more than passing mention (see Plate 32). Probably all of them carry one or other of the various species of Protozoa (*Trypanosoma*) causing fatal diseases to man and domestic animals. Like other animals, tsetse flies can be divided into two groups according to habitat, either forest or savanna. Two common darker species, *G. palpalis* and *G. tachinoides*, found along waterways in forest, or gallery forest, carry human sleeping-sickness, and also Trypanosomes of domestic animals. Two common paler species, *G. morsitans*, occurring in the Ubangi-Shari area up to Lake Chad, and the larger *G. longipalpis*, ranging from Senegal to Katanga, are creatures of the savanna.

One more group of invertebrates must be mentioned: the *Mollusca*, on account of the strikingly large snails of genus *Achatina*. Their handsome pointed shells may reach some 6 inches in length and the egg may be as large as that of an ordinary pigeon. These snails are seen only in the wet season, when they are eaten by the natives. Smaller and narrower shells, often highly variegated, belong to the genus *Limicolaria*, and are seen in great numbers after rains. In the swamps huge operculates (*Pila*, formerly known as *Ampullaria*) may reach the size of a cricket ball and are used for food. Mussels and oyster-like species (*Etheria*) occur on rocky beds of rivers: the latter are collected for food, and their shells utilized to make lime.

CHAPTER VI

DISEASES, PESTS, AND HYGIENE

General

A CHAPTER devoted to the health problems of tropical African countries must of necessity consist largely of information concerning the most important communicable diseases gleaned from reports either from the administration or of special investigations and inquiries. No comprehensive study of birth and death statistics or of the causes of death is possible; such basic data are unobtainable outside a few of the larger centres of population. The total population figures are for the most part little more than approximate. Information of value can be obtained from a study of the diseases for which patients seek relief in hospitals and dispensaries: such institutions, however, are few and far between, and persons frequenting them form but a very small proportion of the sick in these vast territories. Still more information is obtained by itinerant dispensaries or other medical travelling units. For years past these have displayed great activity in French Equatorial Africa, carrying out trypanosomiasis (sleeping-sickness) surveys and treating sufferers from that disease. Year after year a large proportion of the population is inspected by these travelling units and the progress of the disease is closely watched. A relatively high prevalence of disease in any given district may, however, be more apparent than real, that district having received more repeated and closer scrutiny than some neighbouring, and perhaps more inaccessible, districts.

The present population of French Equatorial Africa is believed to be about 3,423,000, and of the Cameroons about 2,609,500. It is impossible to say whether the population is stationary, declining, or increasing. The taking of a census is fraught with obvious difficulties. It has not been possible, so far, to count every individual, and gaps have been filled up by estimate or by some empirical formula. The country in its natural state could hardly have supported a large population. Before the coming of the European there was little or no agriculture, and if hunting or fishing failed starvation was not far off. Famines were frequent in the past, and slave raids removed virile members of the community. Malnutrition was probably chronic. Endemic diseases were very numerous. As will be seen later, these territories constitute a generously stocked pathological museum.

The opening up of the country by European enterprise increased the food resources, suppressed war and slave raids, and introduced medical assistance. On the other hand, the opening up of a country provides increased facilities for the spread of infections. Formerly the distance between villages, and differences between tribal customs, constituted a form of sanitary cordon which has completely disappeared. Military and other portorage mingles the population, and has undoubtedly facilitated the spread of such a disease as sleeping-sickness. Infected men contaminated formerly healthy villages and healthy men were infected in places already stricken. Improved communications facilitate the work of public health services, but they have also added greatly to the amount of work such services are called upon to do.

Among the important endemic diseases are sleeping-sickness, malaria, yaws, dysentery, and smallpox. From the point of view of the administration, sleeping-sickness ranks first in importance, but malaria, as everywhere else in tropical climes, is probably the most potent cause of morbidity.

Sleeping-sickness (Trypanosomiasis)

Sleeping-sickness is a disease caused by a microscopic parasite called a trypanosome. The genus *Trypanosoma* comprises many species parasitic in many different vertebrate hosts, from reptiles to man. The trypanosomes are conveyed from host to host by means of biting-insects. Some of these trypanosomes are conveyed from animal to animal and from man to man by tsetse-flies, *Glossinae*; they are in fact dependent on tsetse for their survival. These are the only species that need concern us here. Of them three are of outstanding importance in different parts of tropical Africa, *Trypanosoma brucei*, *T. gambiense*, and *T. rhodesiense*. All of these were primarily parasites of the antelope and other 'big game'. These three species are morphologically indistinguishable, but they differ physiologically. *T. brucei* is unable to infect man; *T. gambiense* and *T. rhodesiense* can. Of these two *T. gambiense* has probably had a much longer association with man; it is now a true human parasite. Fortunately it is much more susceptible to treatment with arsenic than the other forms.

In French Equatorial Africa and the Cameroons it is *T. gambiense* that is responsible for most, if not all, of the sleeping-sickness. Infection is conveyed from man to man by the tsetse *Glossina palpalis*. Another tsetse, *Glossina tachinoides*, also carries infection in these territories. A tsetse-fly may convey infection by two methods. By

interrupting its meal on an individual whose blood harbours trypanosomes, and passing on immediately to bite another victim, infected blood on the tsetse's proboscis may infect the latter. This is probably a very unusual method of transmission and is only likely to be operative when trypanosomes are unusually numerous in the peripheral blood. The indirect, or cyclical, method of transmission is more usual and much more important. In this the trypanosomes undergo a cycle of development in the alimentary canal of the fly, and after an interval of from 10 to 25 days small forms of the trypanosome (metacyclic forms) find their way to the salivary glands of the fly. These are the infective forms. Until the glands are infected the fly is incapable of transmitting the disease. After the glands are infected the fly is dangerous to every susceptible individual it may bite.

The geographical distribution of sleeping-sickness (see Fig. 54) is dependent on the distribution of tsetse-flies. These require heat and moisture. In French Equatorial Africa and the Cameroons *Glossina palpalis* flourishes, wherever conditions are favourable, south of 10° N. latitude. *Glossina tachinoides*, another vector, extends 2° farther north. All *Glossinae* are dependent on humidity and thus on vegetation sufficiently thick to protect them from the sun's rays. *G. palpalis* is confined to dense vegetation in the immediate neighbourhood of water and does not range far: it passes its life in more or less dense forest bordering rivers, watercourses, or other collections of water. *G. tachinoides* requires similar conditions for breeding, but is less dependent on moisture and may seek its victims farther afield in less shaded areas.

In French Equatorial Africa the campaign against sleeping-sickness was formerly carried out by a special staff which, in 1934, consisted of 29 military medical officers, 3 civilian medical officers, 7 assistant sanitary officers, 6 non-commissioned officers of the Medical Corps, 8 sanitary inspectors, and 243 native dressers trained at the Brazzaville Pasteur Institute or at the Libreville Laboratory. The budget for the campaign against sleeping-sickness in that year amounted to 4,560,000 French francs. Since then the special sleeping-sickness service has been suppressed and the work is part of the duties of the regular health departments. (In 1937 there was only one *special* mobile unit at work: this consisted of one doctor and six male nurses and confined its attention to the departments of Logone, Lobaye, and Haute-Sanga.) Cases are sought by parties consisting of either a doctor or a sanitary inspector accompanied by three or four male dressers. In 1937 doctors and sanitary inspectors between them

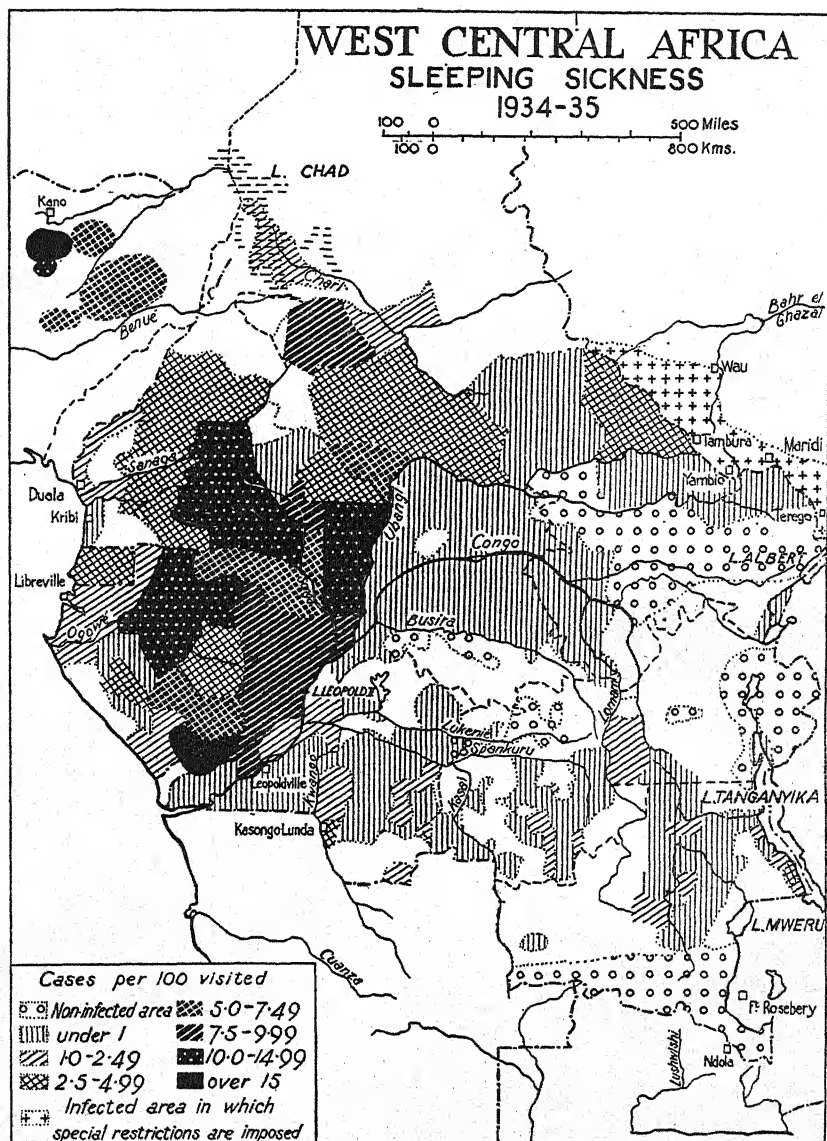


FIG. 54

examined no less than 1,416,741 natives. Among these were 60,196 old cases of trypanosomiasis and 16,597 new cases. These figures do not represent the total number of infections. Only a proportion of the population, though a large one, was examined, and the method of examination was such that a number of less evident infections were undoubtedly missed. The treatment of sufferers is carried out in treatment centres: if the number of cases requiring treatment in a district is sufficiently high, treatment in the villages is provided by mobile treatment units directed by European sanitary inspectors. The number of injections of arsenical preparations given during the year 1937 in the treatment of these people was 597,409.

In the Cameroons in 1937 five survey units examined 473,993 natives: among these were 11,408 old cases of sleeping-sickness, of whom only 380 were still harbouring trypanosomes. They discovered 2,529 new cases. Thus the number of persons harbouring the virus was 2,909, or 0.61 per cent. of those examined. Other medical units examined 277,560 natives and made a complete examination of 53,291 old cases, of whom 97.5 per cent. were free from trypanosomes; they discovered 884 new cases.

The results of all these inquiries in 1937 in each department are summarized below in Appendix I.

It is difficult to form any exact idea of the mortality directly caused by trypanosomiasis. The survey units working in the Cameroons in 1937 found that in the areas visited only 540 of 10,022 deaths from all causes were attributable to sleeping-sickness, 6.35 per cent. of the total mortality. Among 4,874 cases admitted to hospital in the treatment centres during the year 480 died, a case mortality rate of 9.86 per cent.

The above recital of an imposing amount of effort has been concerned with the therapeutic prophylaxis of trypanosomiasis, seeking out the sufferers from the disease and trying to destroy the trypanosomes that they harbour. In essence the eradication of sleeping-sickness in *Glossina palpalis* areas such as these is a question of breaking contact between tsetse-flies and man. The diffuse distribution of *G. palpalis* along countless streams and rivers and the large number of people affected make this a counsel impossible of attainment except on a very limited scale. Villages have been transferred; new villages have sprung up along many of the numerous roads that have been constructed. But the breaking of contact between man and tsetse would mean an altered mode of earning a livelihood for many. Fishing might have to be prohibited: river transport and the gather-

ing of forest products can hardly be divorced from attacks by the tsetse-fly. A good deal can and has been done in the way of clearing scrub and bush and lopping the lower branches of trees for 200 yards or so round fords, bridges, or places used for washing or obtaining water. Similar clearings round tsetse breeding-grounds near villages are sometimes practicable. Camps should be sited, of course, well away from a watercourse and in open country if possible.

Health passports have been used to control the movement of persons from infected areas, and neighbouring administrations collaborate in efforts to control such movement, but the difficulties are many.

Finally, endemic sleeping-sickness is almost invariably associated with great poverty, insufficient food, poor physique, very low standards of living, and very feeble resistance to disease generally. These factors are both effect and cause of the continued prevalence of the disease. Improvement of the natives' standard of life has been followed by marked improvement in some parts of Africa.

In its early stages, at any rate, trypanosomiasis is a readily curable disease, thanks to modern pharmacological research. Effective drugs have robbed the disease of many of the terrors it once possessed, especially for the European. Of the modern drugs Bayer 205 is of value as a prophylactic.

Malaria

Malaria is the most widespread of all diseases throughout French Equatorial Africa and the Cameroons. It is probably the most important cause of morbidity, inefficiency, and premature death. It complicates the clinical picture of many other pathological conditions. To the white man or to other non-immune sojourners in these territories malaria represents the chief threat to health and life. By undermining health, malaria renders its victims more susceptible to other infections. Its very universality may in part explain the fact that the literature dealing with malaria in this part of Africa is much less voluminous than that dealing with other and perhaps less important diseases.

Malaria is caused by a small parasite, certain forms of which circulate in the peripheral blood. *Anopheles* mosquitoes transfer the parasite from man to man. The parasites undergo a cycle of development within the body of the mosquito before it is capable of infecting the second man; this means that the mosquito is incapable of transmitting the disease until a week or more has elapsed since its infecting

meal, the exact period being influenced by temperature and other factors. After man has been bitten by an infective mosquito a period of some 10 days will elapse before he experiences the chill, the fever, the sweat, and other well-known symptoms of an attack of 'fever'.

The mosquito that is responsible for carrying the vast majority of malaria infections in these territories is *Anopheles gambiae*. This mosquito is not particular as to the water in which it lays its eggs, and is therefore very difficult to control. Measures of control aimed at the elimination of breeding-places or at the destruction of the aquatic stages of the developing insect, which have achieved such success in other parts of the world and with other species of malaria-carrying *Anopheles*, have a very limited field of application in these parts of Equatorial Africa. *A. gambiae* breeds in small puddles common in the rainy season, in the small pools that are left in river-beds in the dry season, and in countless other collections of casual water.

It is no exaggeration to affirm that, except perhaps for a few regions in the north of the territories, every member of the indigenous population is infected with malaria very early in life. Infection takes place very soon after birth and, among those who survive the perils of existence, signs of universal malaria infestation are found in children up to 8 years of age. Thereafter infestation rates begin to decline, and when the age of 12 is reached most natives have acquired a state of resistance to malaria which, reinforced by reinfections, may last throughout life. This is Nature's way of rendering human life possible in hyperendemic malaria countries, although an expensive way, for those who fall by the way are very numerous and the survivors are bereft of much of the stamina and efficiency that they might have possessed in malaria-free surroundings. As will be seen later on, the infant mortality rate in French Equatorial Africa probably exceeds 500 per 1,000 live-births, and much of this mortality is directly or indirectly attributable to malaria.

The primordial importance of malaria is not reflected in hospital and dispensary returns. In 1937 malaria appeared as the diagnosis in the case of only 3.6 per cent. of the patients seeking relief in these institutions in French Equatorial Africa and 7.4 per cent. in the Cameroons (Gabon 6.5, Moyen Congo 5, Ubangi-Shari 0.97, and Chad 2.3 per cent.).

All three types of the malaria parasite, *Plasmodium falciparum*, *P. vivax*, and *P. malariae*, are found in these territories: *P. falciparum*, the cause of malignant tertian malaria, the most virulent of the three,

is by far the most prevalent and is found in upwards of 80 per cent. of the cases.

During 1939 the Brazzaville Pasteur Institute continued observations on malaria in adjacent parts of Moyen Congo. Small inquiries in Dolisie, Pointe Noire, and Mayama confirmed previous findings that among children from one to 7 years of age 100 per cent. are infected.

Administration reports record the results of a certain number of inquiries made each year in a number of districts to determine the proportion of children with enlarged spleens, enlargement of the spleen being the common accompaniment of malaria infection. These spleen rates vary considerably from place to place and at different seasons of the year, but they are nearly all indicative of a high prevalence of endemic malaria.

The above remarks apply to the tropical and equatorial parts of the territory. The climatic conditions in Kanem and in more northerly regions of Chad are less favourable to mosquitoes. Here as elsewhere, however, man lives in proximity to water-supplies. Oases and ouadis in climates of the Sahara type produce large numbers of mosquitoes at certain seasons of the year, and among these mosquitoes are some redoubtable vectors of malaria. Very little work appears to have been done with regard to the anopheline fauna of the extreme north of French Equatorial Africa, in parts of which malaria is a prevalent disease. Investigations in Bol and Rig-Rig in Kanem in 1937 showed parasite rates among the children of 10.2 and 9 per cent., and spleen rates of 39 and 20.6 per cent. The spleen index among the Arabs of the Batha region was 48 per cent., evidence of a high rate of endemicity. In the Tibesti-Borkou-Ennedi department a spleen rate of only 1.6 per cent. was found among 428 Gorane children, and a spleen rate of 20.8 among 769 Fezzanai children.

In existing social and economic conditions little can be done to protect the native populations of the tropical and equatorial parts of the country from the ravages of malaria beyond the supply of quinine or other anti-malaria drug. Quinine should be made available to help infants and children tide over acute attacks until they have acquired the resistance to malaria which repeated infections confer. Quinine should also be available for adults in the event of acute attacks. Outside towns of some size and importance a direct attack on *Anopheles gambiae* is hardly practicable except in very unusual circumstances.

For the protection of the European sojourner, or of controlled

bodies of men, many protective measures can be applied. The thorough use of prophylactic quinine would be advisable. The intelligent use of mosquito-nets is important. Permanent huts should be screened with wire gauze. Camps should be sited as far away as possible from swamps or other mosquito breeding-places, and the proximity of native villages should also be avoided, since native children are the chief source of infection. African servants and their families should also be quartered as far away as possible; half a mile is not too far. Should it be impossible to site a permanent camp sufficiently far from breeding-places that cannot be drained or filled in, these would have to be treated once a week or so with Paris green or oil to destroy mosquito larvae. These and other precautionary measures are discussed at greater length in the section on 'Hygiene'.

Blackwater fever, a complication of malaria, more common among Europeans than among natives, occurs from time to time. In 1937 in the Cameroons 3 cases and 2 deaths were reported. In the same year there were 34 European and 15 native cases in French Equatorial Africa.

Yellow Fever

Yellow fever is an acute disease of tropical West Africa and of Central and northern South American countries. Infection is conveyed from man to man by a mosquito, *Aedes aegypti*. The history of yellow fever on the west coast of Africa is a long one, but whether the disease originated in Central America and was transported thence to West Africa, or vice versa, has not been finally decided: it is a question of considerable academic interest, but one of little or no practical importance. In French Equatorial Africa and in the Cameroons no large outbreaks have occurred during recent years, but localized small outbreaks and sporadic cases are of frequent occurrence, and afford evidence that the disease is endemic in parts of both territories. It would seem probable that infection is kept alive in natives possessing a high degree of immunity to the disease: no evidence has been forthcoming that wild or domestic animals act as reservoirs of infection in these countries.

In 1937 a European died of yellow fever in Mora in the north of the Cameroons. In February and March three Europeans died of the disease in Libreville, and a few months later another European contracted a fatal infection at Chinchoua (Gabon). In April a fatal case occurred in Brazzaville. In September a fatal case was reported 10 miles from Bangui, and another in November from Mobaye, both

places being in Ubangi-Shari. All were Europeans. The diagnosis in all these cases was confirmed in the laboratory.

In Maroua and Garoua in north Cameroons 34 Europeans and 30 natives were vaccinated against yellow fever; in Brazzaville 31 Europeans, in Fort Archambault 91 Europeans and 52 natives, and in Bangui one European and 5 natives were similarly protected.

At Douala, Cameroons, energetic measures appear to have been taken to reduce the high prevalence of *Aedes aegypti* mosquitoes. The *Aedes* index was reduced from 45 to less than 6 per cent. *Aedes aegypti* is a domesticated mosquito, breeding in water-containers in and around the house—old tins, barrels, gutters, gourds, in fact any receptacle that will contain water. Holes in trees may provide breeding-places, as may banana trees. The householder can do much to reduce to insignificant proportions the infestation of his premises with this troublesome pest, which bites man by day as well as by night.

Europeans serving in these countries should be protected by vaccination against yellow fever.

Aedes aegypti also acts as the vector of dengue in parts of West Africa; no records of its occurrence in French Equatorial Africa have been found. Dengue is a fever of short duration with a low rate of mortality, but uncomfortable and incapacitating while it lasts: it may occur in widespread epidemic form among a susceptible population.

Plague

Plague need cause little or no concern to the Cameroons and French Equatorial Africa. Plague is a disease of rats which is communicable from rat to rat and from rat to man by the rat flea. The degree of risk to which countries such as these are exposed is determined by the extent and nature of the shipping communication of their ports with plague-infected ports, the efficacy of the measures taken at the infected port of departure to prevent the export of infection, the freedom or otherwise of the ships from excessive rat infestation, the methods of unloading cargo at the port of arrival, and the degree of rat infestation at such port. On most of these counts the risks of the introduction of plague into the Cameroons and French Equatorial Africa are very much less than they have been in the past, and there is no record of these territories having been infected.

The last cases of plague reported from Nigeria occurred in 1931.

In 1937 only six cases of plague were reported from the Belgian Congo; this is the nearest possible source of infection, but adequate measures appear to be taken to safeguard against that risk.

During 1937, in French Niger territory just north of Tanout, 145 cases and 109 deaths were attributed to plague. There is some doubt as to the nature of this outbreak; no concomitant epizootic was noted among the rats, and bacteriological confirmation of the nature of the disease was incomplete.

A certain amount of rat destruction and rat examination is carried out as a routine in the Cameroons and at Brazzaville, Pointe Noire, and Port Gentil, but not enough to make any appreciable difference in the number of rats at these places.

Smallpox

Smallpox is endemic throughout the territories, but the attention paid each year by the health services of the Cameroons and French Equatorial Africa to the vaccination and revaccination of the population has prevented any large epidemic manifestation. In the Cameroons the cases and deaths attributed to smallpox during three recent years were: 1935, 138 and 27; 1936, 1,061 and 194; 1937, 20 and 11. The incidence of the disease in French Equatorial Africa has been even lower: cases and deaths numbered: 1935, 17 and 2; 1936, 32 and 11; 1937, 13 and 4. Figures for this, as for all other diseases, probably much understate the true incidence, but by how wide a margin it is impossible to say. Of the 13 cases reported from French Equatorial Africa, 11 occurred in Logone, one in Kanem (where there were probably several), and one in Berberati. During 1937 the number of vaccinations performed in French Equatorial Africa was 624,136 and in Cameroons 362,447. It is important that European and other sojourners in these territories should be adequately protected against smallpox by vaccination.

In French Equatorial Africa and in the Cameroons a disease occurs which may resemble either smallpox or chicken-pox but is distinct from both. It may cause considerable difficulty in diagnosis. It is known locally as *Abou Moukmouk*. Boulnois, Malbrant, and Dolier have described this epidemic disease (*Bull. Acad. Méd.* 1939, pp. 847-53). Four-fifths of 125 cases reported occurred in persons recently successfully vaccinated. Ninety-five individuals were successfully vaccinated during the eruptive or scabbing stages of the disease, or from 8 to 10 days after recovery. Three convalescents from chicken-pox contracted *Abou Moukmouk*.

Relapsing Fever and African Tick Fever

Tick fever is a disease caused by a minute parasite called a spirochaete, which is very similar in appearance to the parasite that causes European relapsing fever. The spirochaetes are found in the peripheral blood. In the European form of the disease, lice are responsible for conveying infection from man to man. In the African form of the disease it is a tick, *Ornithodoros moubata*, that is the vector of infection. African tick fever is a milder disease than its European counterpart, has a lower mortality rate except in under-nourished and sickly people, and is readily cured by drugs.

This form of relapsing fever is probably more common in French Equatorial Africa than the reported incidence suggests. During 1937, forty-one cases only were reported from French Equatorial Africa. Four of the patients were Europeans. Twenty-four cases were reported from the department of Haut Ogooué. In the latter a high degree of infestation of native huts with *Ornithodoros moubata* was specifically mentioned, so there can be but little doubt as to the nature of these cases of relapsing fever.

The disease should be of very little importance to bodies of troops or other visitors. Tick-infested huts and premises should be avoided.

Early in 1925 a serious epidemic of louse-borne relapsing fever spread from the Niger territory along the pilgrim and caravan routes and entered the Chad territory, spreading through N'Guimi, Mao, Moussoro, and Abéché on the borders of the Anglo-Egyptian Sudan. It branched southward as far as Fort Archambault. In January there were some 100 cases at Fort Lamy, with 30 deaths. In Kanem there were 200 deaths. At Massénia (Baguirmi) there were 109 deaths. In February more than 600 deaths were reported from Fort Lamy, Fort Archambault, Mao, N'Guiri, Bol, Bokoro, Massénia, and Buguerra. Then the epidemic declined, but two months later there were still active centres in the Kanem district, in the north of Baguirmi, and in the north of the Cameroons, at Garoua and Maroua. In recent years there has been no report of louse-borne relapsing fever in these territories, but the above facts indicate that conditions are favourable for its spread, in the colder months, in the north of the colonies.

The typhus fevers do not figure in reports from either the Cameroons or French Equatorial Africa. In 1937, however, the Brazzaville Pasteur Institute isolated the virus of the murine form of typhus from two European patients, one in Pointe Noire, the other at Brazzaville.

It may be that this disease will have to be added to the long list of endemic diseases of French Equatorial Africa.

Intestinal Infections: Dysenteries, Enteric Fever, Diarrhoea

In all tropical and subtropical countries digestive upsets and intestinal infections are apt to be much more frequent and much more harmful than in temperate climes. Climatic conditions *per se* are responsible only in so far as they facilitate the more rapid decomposition of certain foodstuffs, and enervate man's power of resistance to parasitic invasion of all kinds. The primary cause of the high incidence of diseases of this kind is to be found in the low hygienic standards so commonly prevailing in tropical climes. Nearly all intestinal infections, including the typhoid and paratyphoid fevers, the dysenteries, cholera, and certain forms of diarrhoea, are caused by the ingestion with food or drink of germs that are derived from the excreta of other human beings. Water so contaminated may be drunk or used for washing kitchen utensils, or vegetables to be eaten uncooked; the common house-fly on the breakfast table may have recently visited similar material; soiled fingers may have come in contact with infection; dust may contain germs of intestinal infection. It is not only the sick and convalescents that excrete infective germs. Healthy individuals may continue to harbour and excrete dangerous germs for long periods, even for years, after all signs and symptoms of infection are passed. All these disquieting facts emphasize the necessity for the rigid enforcement of a high standard of personal hygiene where the sanitary disposal of human excreta and the safeguarding of water supplies is so difficult to achieve. In the countries we are now considering that difficulty is extraordinarily great. The washing of one's hands before partaking of food is a health measure of no small importance. Every water supply should be regarded as suspect until the contrary is proved. These important matters are referred to in the Section on 'Hygiene'. Visitors to these countries should be protected by vaccination against diseases of the typhoid-paratyphoid group.

In French Equatorial Africa and the Cameroons the risk of cholera can be ignored. The disease has never gained a foothold in this part of the world. No satisfying explanation of the freedom of tropical Africa from cholera has been advanced; conditions appear to be favourable enough for its spread. The population possesses no special immunity against cholera. There is, however, no reason to fear that its long-continued freedom from a dread disease should not continue.

The dysenteries are widely prevalent in the Cameroons and French Equatorial Africa. The number of cases that are reported are probably but a small proportion of the total. Of the two chief forms of dysentery, amoebic and bacillary, the former is most in evidence. In the Cameroons amoebic dysentery is most prevalent in the north and its prevalence appears to be increasing. The number of cases reported were: 1935, 1,652; 1936, 2,785; 1937, 3,236 (of which 51 Europeans). Cases are most numerous during the rainy season, May, June, and July. Liver abscess, a dread sequel to inadequately treated amoebic dysentery, is not rare: there were 11 cases treated in 1935, 23 in 1936, and 38 in 1937.

There were only 983 cases of bacillary dysentery notified in the Cameroons in 1937. In the M'Bam region in the north there was a considerable epidemic. The epidemic started in the village of Nachtigal and spread in the regions of Bafia, Lemande, and Yam-bassa. Of the 910 known cases 397 died; 405 cases were treated in hospital.

In French Equatorial Africa 6,844 native cases and 165 European cases of amoebic dysentery were reported in 1937. Of these 1,099 cases occurred in the Lower Chari department of Chad. The disease is most prevalent along the banks of the Chari and of Lake Chad. There were 13 cases of liver abscess treated.

As in the Cameroons, bacillary dysentery is less frequent: 173 cases were recorded in 1937, of which 17 were Europeans. Most of these cases were reported from the Dar el Kouti department of Ubangi-Shari, where 23 persons are known to have died of the disease. Elsewhere the disease appears to have been mild.

Fevers of the typhoid group are strangely little in evidence as a cause of morbidity and death in these territories. During 1937 one mild case of typhoid fever was reported in Tchang, Cameroons, and four native cases and one fatal European case in Port Gentil, Gabon: that is all. It is hard to believe that these ubiquitous infections are so nearly non-existent as these figures would seem to indicate. It may well be that among the natives infection is generalized during the early years of life and that the adults have thereby acquired a solid immunity, and that most Europeans are protected by vaccination. In the prevaccination days in India enteric fevers were relatively little in evidence among the Indians, but the very high rates among British troops stationed there were eloquent testimony of the universality of infection; a similar explanation probably held good there.

Yaws

Of all diseases yaws is pre-eminent as a cause of sickness among the native inhabitants of the tropical and equatorial area of French Equatorial Africa and the Cameroons. Yaws, sometimes called Frambœsia, or Pian, is a contagious, chronic disease of the tropics. The territories we are considering were probably part of its original home. It is caused by a parasite, *Trepenoma pertenue*, which is very similar and very closely related to *Trepenoma pallidum*, the cause of syphilis. But yaws is not a venereal disease as syphilis is. Infection is acquired through skin abrasions, by mechanical contact, flies, &c. Most cases of yaws tend to spontaneous cure; cases of syphilis do not. Yaws is pre-eminently a disease of childhood, recovery from which causes lasting immunity: adult cases in hyper-endemic areas are therefore less frequent. Yaws is very readily curable with anti-syphilitic drugs or with bismuth salicylate. So rapid is the recovery sometimes, after appropriate treatment, from a slow, chronic, disfiguring and sometimes painful disease, that a high incidence of yaws offers the medical profession unique opportunities of gaining the confidence of native populations.

Yaws seems to flourish best in tropical country with heavy rainfall and dense tropical vegetation. So much is, indeed, to be seen in the reported distribution of the disease in the Cameroons and French Equatorial Africa.

In the Cameroons in 1937 yaws was the diagnosis in 9 per cent. of all cases seen by the health personnel. The total number of cases was 111,016. The disease was becoming less frequent in the big centres and is almost non-existent in the north of the country. In the Moungo region at NKongsamba a notable reduction in the incidence of the disease followed on treatment; the florid forms of the disease are only seen in children.

In French Equatorial Africa 97,246 cases of yaws were reported in 1937. In Gabon and Ubangi it was responsible for 4 to 14 per cent. of the total morbidity. In Gabon the Adoumas and the Woleu-N'Tem departments are very severely infected; here yaws caused 18 and 62.7 per cent. of all diseases treated. In Woleu-N'Tem nearly all the children were infected. In Moyen Congo the highest incidence was reported from the Alima department, 27.4 per cent. of all diseases. In the Lobaye, Kemo-Gribingui, and Basse-Kotto departments of Ubangi-Shari the indices of yaws morbidity were 20.1, 20, and 55 per cent. respectively. Farther north there is a progressive diminution in

the incidence of yaws, which does not occur at all in Ouadai and Tibesti-Borkou-Ennedi.

Cerebrospinal Meningitis

This is a serious epidemic disease, almost world-wide in its distribution, which may give rise to severe epidemics, above all in times of stress among bodies of persons living in close proximity. It is one of the anxieties of war-time conditions. Outbreaks have been reported from time to time from French Equatorial Africa. In 1935-6 there was a severe epidemic in the Ouadai-Salamat and the Fort Archambault regions. In January 1937 the disease reappeared in the Salamat department south-west of Am'-Timan and spread westward through Fort Archambault and Moundou to Mayo-Kebbi. The epidemic died out in May. Six departments were involved: Salamat, Moyen Chari, Baguirmi, Logone, Ouham, and Mayo-Kebbi. Logone suffered most: here 1,300 cases and 758 deaths were recorded. In Moyen Chari there were 700 cases and 230 deaths. Deaths reported from other departments numbered Salamat 155, Baguirmi 127, Ouham 29, and Mayo-Kebbi 17. From Moundou it was reported that the cases occurring during the first 2 weeks of the epidemic were much the most acute, death often occurring during the first 24 or 48 hours of the attack. Later cases were less fulminating, and towards the end of the outbreak the germ appeared to have lost much of its original virulence. This is a not uncommon sequence of events. A certain use was made of prophylactic vaccination with a vaccine prepared at the Brazzaville Pasteur Institute from local strains of meningococcus.

In 1938 the disease reappeared early in January, and the subsequent epidemic was more widespread and more severe. Once more the outbreak was limited to the dry season; it ended with the advent of rain in the middle of April. In the interval 3,261 deaths were ascribed to cerebrospinal meningitis compared with 1,326 in 1937. Cases were reported from the borders of Lobaye, 5° N., to Mao, 14° N. It first appeared simultaneously in Logone and 600 kilometres away on the southern shore of Lake Chad. The three chief centres of infection were Moyen Chari, Logone, and Bas Chari. Secondary centres of infection were in Haute Sangha, Ouham, Mayo-Kebbi, and Baguirmi. In addition to the cold and dryness, facilities for the spread of infection were afforded by the more extensive movement of the population at this season of the year: field work is finished and cotton markets attract numerous visitors. Young adults and children appear to have suffered most, infants having been

almost exempt. The epidemic was preceded for some 15 days, and accompanied by numerous cases of 'influenza', especially among Europeans.

Venereal Diseases: Syphilis

Difficult as it is to obtain figures indicative of the ravages caused by disease, there is no doubt that syphilis is very widespread throughout these territories. In the Cameroons during 1937 syphilis cases numbered 84,784, 6.8 per cent. of all hospital and dispensary attendances, as compared with 8.3 in 1936 and 9.2 in 1935. In areas in which travelling medical units have been most active in past years, there appears to be a decrease in the amount of the disease. The lowest incidence is in the area which comes within the direct supervision of the health service of Douala. In the Cameroons, as a whole, it is the later tertiary manifestations of the disease that bring the patient to hospital, but among African races the central nervous system is not so often affected, in the form of locomotor ataxy or general paralysis, as among Europeans. Every endeavour is made to treat as many cases as possible and at as early a stage of the disease as possible. Travelling units do their best to seek out cases of syphilis as they do cases of sleeping-sickness and yaws. Such prenatal clinics as exist are doing good work for the control of syphilis. A sum of 204,000 French francs was spent on the purchase of anti-syphilitic drugs for the Cameroons in 1937.

In French Equatorial Africa 79,154 native and 157 European sufferers from syphilis were seen in 1937, 7.8 per cent. of the total morbidity. These figures are said to give an inadequate idea of its prevalence: the disease is very widespread and the incidence is increasing in Ubangi and Chad. The large centres of population suffer most, and the disease spreads from them along the lines of communication by road and river. Nearly half a million francs were spent on anti-syphilitic remedies during the year.

Other forms of venereal disease are comparably prevalent.

Leprosy

Lepers are numerous. In the Cameroons, during 1937, 3,394 new cases of leprosy were found and 3,150 lepers died. Known lepers at the end of the year numbered 17,174. There are 30 agricultural colonies in the Cameroons wherein are accommodated 5,293 lepers—the best method of segregation.

In French Equatorial Africa there are 21,662 known lepers dis-

tributed as follows: Gabon 2,914, 0.75 per cent. of population; Moyen Congo 1,572, 0.32 per cent.; Ubangi-Shari 13,096, 1.56 per cent.; Chad 5,080, 0.32 per cent.

Tuberculosis

Tuberculosis, the scourge of white races, does not spare the black. Diseases indigenous to tropical countries have taken heavy toll of white immigrants: in many parts of the tropics the white immigrant has introduced tuberculosis, sometimes with very disastrous results. How long tuberculosis has been one of the endemic diseases of Equatorial Africa is not known, nor is there definite information as to the present extent of its prevalence. Cases are reported each year from all parts of the territory, but sufferers form but a small proportion of the total attendances at dispensaries and hospitals. In regions in which there are populated centres of any size the incidence of the disease appears to be on the increase. In 1937 in the Cameroons tuberculosis was the diagnosis in 442 cases seen by the different health units: 371 were the pulmonary form of the disease; 184 were admitted to hospital, of whom 44 died. In Maroua in the north of the Cameroons 40 per cent. of the prisoners gave a positive tuberculin test, which would seem to indicate a moderately widespread infection.

In French Equatorial Africa 825 tuberculosis patients were seen during 1937, less than 0.1 per cent. of total attendance. Of these 195 were in Gabon, 363 in Moyen Congo, 189 in Ubangi-Shari, and 78 in Chad. It would seem that Chad with its hot dry climate is less affected than the tropical and equatorial areas. At Libreville 76 per cent. of the population above 15 years of age gave a positive tuberculin reaction. In Brazzaville 29 per cent. of 688 children between the ages of 6 and 13 gave a positive reaction, as compared with 4.2 per cent. in 1929, a remarkable increase. A beginning has been made in an attempt to immunize infants in Brazzaville and Libreville against tuberculosis, with B.C.G.

Influenza: Respiratory Diseases

Influenza does not spare these territories, though its ravages are less than in more temperate climes. Some cases and deaths are attributed to influenza each year. In 1937 the Cameroons reported a mild epidemic at the beginning of the dry season. In the Kribi region 1,136 patients were treated by the dispensaries. In French Equatorial Africa 2,362 cases were reported. In Chad influenza prevailed at the same time as did cerebrospinal meningitis, a co-existence which

occasioned some difficulties in diagnosis. In the Fort-Crampel subdivision of the Kemo-Gribingui department there was an outbreak of 128 cases and 8 deaths, mainly pulmonary in type. In the Moyen Congo the Kouilou department reported 30 European and 478 native cases; Niari one European and 102 native cases. Pool reported 55 European and 341 native cases: 239 cases were seen in Brazzaville. In the department of Ogooué-Maritime one European and 288 native cases were seen, all mild. It is worth recording that the murderous pandemic of so-called influenza that marked the close of the last war in 1918, with its serious pulmonary symptoms, spared no part of these territories, where nearly two-thirds of the population appear to have been attacked and many died.

The dark races are for the most part highly susceptible to the pneumococcus, the cause of the common forms of pneumonia, and in some years, in certain parts of these territories, pneumonia is a prevalent cause of death. The year 1937 was relatively fortunate in this respect. In the Cameroons there were 40 cases of pneumonia and 14 deaths in the Yoko subdivision, and 150 cases were reported from Yabassi, three-quarters of them among the labour force employed on the Yabassi-Ndikinimeki road. There were 104 cases at Douala and 192 at Edea. At Yaoundé, where pneumonia is usually an important cause of death (15 per cent. of the deaths in hospital in 1935), only sporadic cases occurred in 1937. Altogether in the Cameroons 1,170 cases were reported: of these 356 were treated in hospital, of whom 113 died, a case mortality rate of 31.7 per cent.

In French Equatorial Africa no pneumonia epidemics were reported among labour forces in 1937, but sporadic cases, severe in type, occurred: their numbers were Gabon 225; Moyen Congo 2,667; Ubangi-Shari 410; Chad 406. Among 648 treated in hospital 249 died. In Kouilou there were 22 deaths among 112 cases. Pneumonia is most prevalent in the transition between wet and dry seasons except in Chad, where the dry season, November-March, sees most cases.

Bilharziosis

Bilharziosis is a disease caused by the invasion of the body by a trematode worm. Two forms of the disease are found in these territories, the vesical or urinary form due to *Schistosoma haematobium*, and the rectal form due to *Schistosoma mansoni*: the former is the more frequent, except perhaps in the part of Ubangi-Shari bordering on the Anglo-Egyptian Sudan. In the Cameroons, in 1937, 311 cases of urinary bilharziosis were seen mostly in the north of the country,

and notably at Guider (Mandara) and at Yagoua (Logone). At the Guider School 36 of 63 children between the ages of 5 and 15 were infected.

In French Equatorial Africa 3,700 cases of urinary bilharziosis were reported in 1937, of which 3,274 were seen in Chad. In Chad the departments of Mayo-Kebbi, Batha, and Kanem reported the highest number of cases. In certain areas the degree of infestation is very much higher than these figures indicate. Infections with *Schistosoma mansoni* are rare outside Ubangi-Shari. In the Ouham-Pendé department 29 per cent. of those examined were infected, and in the Upper M'Bomou department there is a high degree of prevalence in the neighbourhood of Zemio.

Filariasis

Guinea-worm infection, caused by the invasion of the body by a nematode worm, *Dracunculus medinensis*, is found in the north of the Cameroons, more especially south of the Chari region in the Logone area, above all along the banks of the river (responsible for 6.4 per cent. of dispensary attendances at Yagoua). It is also found in the Mandara region, along the Nigerian frontier, and in the plain of Mora. In French Equatorial Africa it is largely confined to Chad.

Patients infected with other forms of filaria do not come often for treatment, but systematic examination of people shows that infection with blood filariae is very widespread in certain areas of the Cameroons and French Equatorial Africa. Some 46,000 natives in eight regions of the Cameroons were examined and the infestation rates were: Nyong and Sanaga 80; Upper Nyong 74; Boumba-Ngoko 60; N'Kam 80; M'Bam 70; Noun 18; Wouri (Douala) 39; Fort Fourreau 1.7 per cent. *Filaria loa* and *Filaria perstans* were found in about equal proportions; at Yabassi, however, and in the neighbourhood of Fouban *F. loa* was much the more prevalent, while at Doumé the reverse was the case. In the department of Adoumas, Gabon, a large proportion of the population are infected with *F. bancrofti* and *F. loa*.

Onchocerca volvulus, causing the characteristic cysts, chiefly on the chest wall, is very prevalent in the N'Tem and N'Kam areas of the Cameroons and in parts of the Adoumas and Ogooué-Maritime departments of Gabon.

Other Parasite Worms

Intestinal parasitism with some form of Nematode or Cestode, or both, appears to be almost universal in large areas. Throughout the

Cameroons intestinal parasitism of this kind can be found in from 80 to 100 per cent. of the population. This condition was responsible for 8.6 per cent. of attendances at dispensaries in 1937. The tape-worm *Taenia* is largely restricted to the cattle-raising areas of the north. Ankylostomes were found in about half of some 50,000 examinations of faecal samples, and severe anaemias with oedema, caused by this hook-worm infestation, are fairly common.

In French Equatorial Africa intestinal parasites were responsible for 4.2 per cent. of dispensary attendances. In Gabon the infestation rate appears to be 100 per cent., and more than 50 per cent. in the other three colonies. About a third of the population specifically examined were found infected with ankylostomes.

Trachoma

Trachoma in the Cameroons is almost confined to the north. Of the 453 cases reported in 1937, 132 were in the Chari region, 154 in Mandara, and 125 in Logone. In the same year 3,629 cases were reported from French Equatorial Africa: of these 1,594 were seen in the department of Batha, 606 in Mayo-Kebbi, 449 in Ouadai, 316 in Salamat, and 232 in Kanem. Thus the disease appears to be confined to the north. The acute form of the disease occurs chiefly among children less than 10 years of age; the chronic form is common in older children and adults. It is noteworthy that in Tibesti-Ennedi-Borkou, in spite of dirt and the frequency of conjunctivitis ascribed to sandstorms, no cases of trachoma have been seen.

Maternity and Child Welfare

The lack of vital statistics precludes dogmatic statements regarding the hazards of infant life. Noteworthy among recent reports on the subject is a record of two years' child-welfare work in Moyen Congo by Damien Laurent (*Rev. Méd. et Hyg. Trop.* 1938). He believes that in Moyen-Congo deaths of infants under one year of age number at least 500 per thousand live births, and in places 800 per thousand. Women can be induced to attend antenatal clinics, but they are averse to coming to hospital for labour. Starvation is an important cause of infant mortality: the mother's milk fails from laborious work and underfeeding. Cold causes respiratory affections in naked infants. Among 500 infants brought regularly to the Brazzaville child-welfare centres only 16 died in the first year of life. Evidence of deficient vitamins is shown in arrested growth, oedema of the limbs, infantile scurvy, rickets, and skin affections. Premature birth is common, caused for

the most part by hard manual work in the later months of pregnancy, and not by syphilis. Respiratory diseases cause about half the total infant deaths; clothing does much to prevent this. Malaria is universal after the first few weeks. Whooping cough is endemic and occurs throughout the year. Tuberculosis is much less important than in civilized countries.

Much work is being done to better conditions. In the Cameroons there is an antenatal clinic in each medical centre. These are least frequented among the Islamic populations in the north, but slow progress is being made even here. During 1937 the 22 child-welfare centres in the country cared for 35,147 infants aged 0 to 2, and 59,832 aged 2 to 5, the number of visits being 222,624 and 314,028, respectively. These figures indicate a three- to fourfold increase of activity during 5 years. In addition private philanthropic societies are doing very much; among them being the Catholic Mission, the French Protestant Mission, the Norwegian Protestant Mission, the American Protestant Mission, and the Seventh-Day Adventist Mission. Most of these have orphanages, and all are engaged in some form or other of maternity or child-welfare activity.

In French Equatorial Africa there are ten maternities. These are fairly well patronized in towns but not in rural areas. The number of births taking place in these institutions increased from 1,095 in 1936 to 2,652 in 1937. Child-welfare centres are numerous and widespread: during 1937 they cared for 38,863 infants in the first year of life, and 39,341 children aged 2 to 5. Here again private philanthropic and missionary enterprise do most valuable work. Among these are:

- Gabon:* L'Œuvre de la protection de l'enfance et de la maternité indigène en Afrique Equatoriale Française.
The Dr. Schweitzer Hospital at Lambaréné (Gabon).
Protestant Mission of Sampika (Ogooué-Maritime).
Catholic Mission of Lambaréné.
Catholic Mission 'des Trois Epis' at Sindara (N'Gounie).
Society of Evangelical Missions of Paris, at Djouah.
Protestant Mission of Oyem (Woleu-N'tem).
- Moyen Congo:* Swedish Evangelic Mission; Sibiti and Loubetsi (Niari).
'Missions catholiques des Sœurs', Pool.
'Missions catholiques des Pères.'
Catholic Mission of Linzolo.
Catholic Mission 'Sœurs de Kindamba'.
Catholic Mission of Kibouendé.
Catholic Mission of Voka.

Catholic Mission of Mindouli.
 Catholic Mission of Franceville (Haut Ogooué).
 Catholic Mission of Boundji (Likouala-Mossaka).
 Catholic Mission of Leket (Likouala-Mossaka).
 Baptist Missions of Bania, Gamboula, and Carnot (Haute-Sanga).

Ubangi-Shari: Catholic Mission of Lobaye.
 Evangelical Mission of Yalouké (Ombella-M'poko).
 Catholic Mission of Bangui.
 Two American Evangelical Missions (Ouham-Pendé).
 American Evangelical Mission of Bellevue (Ouham).
 Evangelical Mission of Zemio—Inland African Mission (Haut-M'Bomou).

APPENDIX I

The Prevalence of Sleeping-sickness. The Results of Examinations by Doctors and Sanitary Inspectors in 1937

A. FRENCH EQUATORIAL AFRICA

Gabon

Estuaire. The disease has increased in prevalence since 1933, notably in the neighbourhood of Libreville. Index of new infections: 1933, 0.38; 1937, 0.97 per cent.

Ogooué-Maritime. The three coastal districts Port Gentil, Omboué (Fernan Vaz), and Sette-Cama, very little infected. The other two districts, Lambaréné and N'Djole, total morbidity rate 2 per cent.

Nyanga. Prevalence diminishing. New infections in Mayoumba and Tchibanga subdivisions 0.68 and 0.81 per cent. as compared with 0.81 and 0.97 in the previous year.

Ngounié. Prevalence of sleeping-sickness declining. New infections in the four subdivisions were: Mimongo 0.49 (1933, 0.53); M'Bigou (plateau region) 0.04 (1.64); Mouila 0.35 (0.38); Fougamou 0.25 (0.21).

Adoumas. Total morbidity 5.34 per cent. New infections 0.31 per cent. Sleeping-sickness prevalence stabilized since 1932 after widespread outbreak.

Djouah. The subdivision of Booué, on the Ogooué, worst infected; new infections: 1936, 5.2; 1937, 2.09 per cent. Subdivision Makokou only mildly affected. Subdivision Mekambo, violent outbreak in 1930; disease now diminishing; new infections 1.20 per cent. as compared with 2.8 in 1936.

Woleu-N'Tem. Prevalence decreasing for several years past. In 1937 new infections 0.07 per cent.

Moyen Congo

Kouilou. Extremely little sleeping-sickness.

Niari. Subdivisions Dolisie and N'tima, morbidity rates 6.7 and 2.3 per cent.; new infections 1.3 and 0.6 per cent. In Dolisie considerable foci of infection in transplanted villages on the road which runs alongside the railway. The subdivision Sibiti severely infected; morbidity rate 20.2; new infections 6.7 per cent. The three northern subdivisions, Zanaga, Omoi, and Mossendjo, have suffered very little.

Pool. In the Madingou subdivision the disease is active near the banks of the Niari; morbidity 7.7; new infections 1.2 per cent. In the Mouondzo subdivision similar morbidity rate but new infections lower, 0.6 per cent. The subdivision of Mindouli less affected, morbidity 3.2, new infections 0.48 per cent. The Kinkala and Djambala subdivisions almost free from the disease. The Brazzaville subdivision is the most contaminated; morbidity 16.7, new infections 1.6 per cent. Here 'the corridor' has been grossly infected for many years and Brazzaville has a large floating population.

Haut Ogooué. Morbidity 5.7, new infections 0.53 per cent. The prevalence of the disease remains constant.

Alima. Despite conditions very favourable for the tsetse the disease is relatively mild: morbidity 3.1, new infections 0.43 per cent. The prevalence of the disease is stationary. The worst affected areas adjoin the Congo.

Likouala-Mossaka. Prevalence decreasing in the Fort Rousset and Makoua subdivisions; stationary in Mossaka subdivision. Prevalence highest in Abolo subdivision, where morbidity 11.29, new infections 4.9 per cent. The Ewo subdivision, new infections 1.29 per cent.

Likouala. Morbidity index 13; new infections 3.7 per cent. The Dongou subdivision in the north of the department is most severely infected (17 and 9.9).

Sanga. Little infected. Among 20,337 natives inspected new infections 0.4; total morbidity 4.1 per cent.

Haute-Sanga. This department, and more particularly the northern subdivision of Nola, is the most severely infected area in French Equatorial Africa. Nola subdivision's total morbidity was 61.7 and new infections 21.5 per cent. About 20 per cent. of the population were harbouring trypanosomes. The chief focus of infection is along some 20 kilometres of the track from Nola to Yokadouma. The population belong to the M'Bimou tribe. Their total morbidity was reported as being 82.4 and the new infection rate 50.2 per cent. Another focus north-east of Nola had rates of 67.8 and 22.7. The subdivision of Berberati is but lightly infected, and that of Carnot is practically free from infection, though it once suffered severely.

The trypanosomes that infect the members of the M'Bimou tribe,

unlike those of the vast majority of sleeping-sickness cases in French Equatorial Africa, are remarkably resistant to treatment with arsenic. The localization of this arsenic-resistant strain of trypanosome to the members of a tribe rather than to a particular region is remarkable. The hypothesis has been put forward that they have obtained infection with some animal trypanosome acquired in the forest while engaged in the collection of rubber.

Ubangi-Shari

Lobaye. The subdivisions of M'Baiki and Boda were reputed badly infected. During 1937 four medical units examined the whole population and reported that the department was almost free. In Boda one injection of arsenic caused the permanent removal of the trypanosomes from the patients' blood. This sudden loss of vitality in the parasite and its resistance to treatment in an area which year after year exhibited a constant and high rate of infection is of interest.

Ombella-M'poko. Lightly infected. Total morbidity rate about 2 per cent.

Ouham. The worst infected department of Ubangi-Shari. Sufferers from sleeping-sickness numbered 13,848, of which 5,163 were new cases, among a population of 93,000. In the areas bordering the Nana Bakasso the new infection rate was 8 per cent. It was 4.5 per cent. in the Kouki subdivision, and 7.5 per cent. in Batangafo.

Ouham-Pendé. Very lightly infected. The relative immunity of this department is curious, surrounded as it is by highly infected areas.

Kemo-Gribingui. The incidence of the disease increases from south to north. New infection rates for subdivisions were Fort de Possel 0.04, Fort Sibut 0.55, Dékou 0.99, and Fort Crampel 1.80 per cent. The high rate of Fort Crampel is ascribed to infections contracted in the collection of forest products.

Ouaka. Lightly infected and incidence decreasing. New infection rate 0.11 per cent. in 1937 as compared with 0.92 in 1934.

Basse-Kotto. Received little attention in 1937; infection reported to be but light.

Bas M'Bomou. Not inspected in 1937.

Haut M'Bomou. Two small foci of infection at Zemio and Obo, where new infection rates of 0.43 and 0.71 per cent. were reported.

Dar el Kouti. The Ndélé subdivision visited for the first time in 1937: the morbidity rate was found to be 0.04 per cent.

Chad

Moyen Chari. The north-east of the department is free from sleeping-sickness. In the south-west the disease occurs along the watercourses. In the north-west the Niellim district along the left bank of the Chari suffers considerably.

Logone. The riverain populations in the east and west of the department have the highest incidence of infection. The total morbidity and new infection rates for the subdivision of Moundou were 4.77 and 1.38, and for Doba 7.6 and 1.3 per cent. In the Baibokoum subdivision there is a large focus of infection in the neighbourhood of Bim and Bassao where morbidity and new infection rates of 26.2 and 5.5 were reported.

Bas Chari, Baguirmi, Mayo-Kebbi. In these three departments sleeping-sickness is confined to the areas bordering Logone and Chari. The endemic is not severe, but, during the last few years, cases have become more numerous between Fort Lamy and Lake Chad. There were 34 new cases reported here in 1937.

On the whole it may be said that the incidence of sleeping-sickness in French Equatorial Africa shows a tendency to decline in many areas which were formerly severely infected. There are, however, very persistent centres of infection here and there throughout the territory, more especially in Moyen Congo.

B. CAMEROONS

Region of the Nyong and the Sanaga. The southern Yaoundé region is very lightly infected. In 1937 only 38 new cases were found (0.1 per cent), and of 113 old cases only 2 harboured trypanosomes. In 1937, 11,272 members of the Tsinga and M'Bidas Bane tribes were inspected: 271 new cases were found, and of 269 old cases seen, only 2 harboured parasites. Two small foci of infection were found among the north Banés in the neighbourhood of Yaoundé at Nkolo and Ntsazomo, a rich and densely populated area: 15,742 natives were inspected; 135 new cases found, and 34 out of 1,499 old cases were harbouring trypanosomes. The South Banés area and the Mbalmayo subdivision were all but free from the disease. The focus of infection at EfoK in the densely populated region East Etons received much attention in 1937: all the tribe were inspected; 89,696 were examined: 396 new cases were discovered; among 911 old cases, 14 were still harbouring trypanosomes. The Upper Nyong, the 'cradle' of sleeping-sickness in the Cameroons, is still a dangerous centre of infection in spite of prolonged effort: in the Abong M'Bang subdivision 11,284 natives were inspected; 282 new cases were discovered; of 1,114 old cases, 106 still harboured trypanosomes. The low swampy area round the American Protestant Mission Centre at Nkolmvolane remains an epidemic centre of the disease. Among the Bikele and the Badjoue of the Messamena subdivision there is an improvement in the situation year by year: in 1937, 17,806 natives were inspected; 106 new cases were seen; of 1,459 old cases, 68 still harboured infection. In the Lomié subdivision the disease is restricted to the area along the road from Abong M'Bang to Lomié: 2,739 natives were inspected; only 12 new cases were found; 159 old

cases were all free from infection. Among the Maka of Doumé the disease remains stationary; 8,787 were inspected; about 1 per cent. of them harboured trypanosomes. There were treatment centres at Doumé, Madouma, Messaména, and Lomié.

Region of M'Bam (Bafia). Here the situation had much improved. Among 28,776 Yambassa inspected 104 new cases were discovered, and only 31 of 1,399 old cases still harboured trypanosomes. Among 16,282 Bafia inspected only 5 new cases were found and only one of 282 old cases was infective. Among 5,958 Sanaga inspected there were 3 new cases and not one of 26 old cases was infective. The Bafia and the Sanaga tribes have been practically sterilized from the trypanosomiasis point of view.

Region of Wouri (Douala). 45,287 inspected; 218 new cases discovered. This is a difficult region to treat; a lazy and quarrelsome population.

Region du Moungo (Nkong samba). In the Mbanga subdivision 339 new cases were discovered among 31,085 natives inspected: 9 out of 345 old cases still harboured infection. The Nkong samba subdivision is practically free from sleeping-sickness. Among 27,869 natives inspected only 20 new cases were discovered and of these 17 patients were non-residents.

Region of Noun. 54,895 Bamoun of Foubam were inspected; 326 new cases were discovered; 5 of 114 old cases were still infective. In this Foubam subdivision the disease is concentrated in the valley of the Mbam.

Region of the Adamaoua. In the Banyo subdivision 4,115 members of the Tikar tribe were inspected: 99 new cases were found and 7 of 162 old cases still harboured trypanosomes.

Region of Kribi. In the Campo subdivision 3,789 natives were inspected (of whom 1,296 were recent arrivals): only 6 new cases were found, and only 2 of 168 old patients still harboured trypanosomes.

Region of the Boumba-Ngoko. 8,417 natives (Djimou, Bangandou, Badinga, and Bidjouki) were inspected: 28 new cases found; only 3 of 1,713 old cases were found infective.

Region of Chari. In the Fort Fourreau subdivision 18,983 natives examined: 59 new cases found; of these 25 were discovered among 2,091 inhabitants of Kousséri.

Altogether in the Cameroons in 1937, 751,553 natives were examined: 63,628 old patients were controlled, of whom 1,692 were found to be harbouring trypanosomes; 3,413 new cases of sleeping-sickness were discovered. The disease for the territory as a whole might be described as being only feebly endemic, but there are epidemic foci which call for continued effort.

HINTS ON HYGIENE

THE few hints which follow may be of value to any who lack tropical experience. The warnings given, and precautions urged, appear to indicate a host of ever-present dangers. That is not the case, for although the forest belt is, definitely, unhealthy there are many parts of French Equatorial Africa which are not. Nevertheless, such dangers as do exist have the double menace of discomfort and unfamiliarity. Prevention is better than cure. The chief enemies to health are the sun (including extremes of temperature), the dust, the water, the natives, the mosquito, the tsetse, the house-fly, and finally vermin, for these are the main, if indirect, causes of trouble.

1. The Sun, and Temperature generally

Sun-stroke is the most obvious danger, and the most vulnerable spot is the back of the neck, at the top of the spine. It is sheer folly to go out in tropical sunshine without a helmet or double terai, and this folly is more pronounced than ever in the morning and evening hours when the sun strikes most directly under inadequate headgear, or when travelling by water or over flat white sand when reflection acts in the same way. Spine pads are often supplied with 'bush shirts', and protect the vulnerable parts of the backbone. If spine pads be lacking a haversack so slung as to hang high on the neck is useful. Glare is also harmful, and sun glasses are almost a necessity. Crooke's lenses are the best. Glasses with side pieces keep out the dust, but are hotter.

Heat-stroke is more likely to affect new-comers to tropical countries than actual sun-stroke, but acclimatization decreases the risk. The danger is not great, however, to persons in good health and of temperate habits. Cases of heat-stroke vary much in gravity. A 'touch of the sun' may entail no more than a severe headache, giddiness, nausea, and perhaps vomiting, together with a slight degree of fever. In very severe cases these symptoms become aggravated. The patient's temperature may rise very rapidly to alarming heights and delirium and unconsciousness ensue. If the temperature be very high, and it may reach 110° F., ice, if obtainable, should be applied to the head and the patient sponged with cold water or placed in a cold bath. When the temperature has been got down to 103° F. or below, a blanket and hot-water bottles may promote sweating.

Alcohol should never be drunk during the day, although it may be a harmless, and welcome, 'pick-me-up' at sundown. If occasion demands standing in the sun, some shade, umbrella or light cover supported by poles, is necessary. If near water the dense shade of trees, where the tsetse-fly lurks, should be avoided.

On the heights, and in the Chad area, temperature falls rapidly as the sun goes down. A coat should be worn before it grows cold and always after exercise. It is wise always to wear a vest to absorb the perspiration. If such luxuries as bath and 'sundowner' are available, sunset is the time for them. The sudden chill of evening and the cold at night often bring stomach troubles. Keep warm and never keep on wet clothes. Cholera belts are an unnecessary nuisance by day, but useful when the sun is down for those with delicate stomachs. Every opportunity should be taken to dry wet clothes and bedding, and to hang up spare clothes and blankets in the sun, shaking them well before putting them to use.

High temperatures are not wholly to blame for skin troubles, but they are contributory, if indirect, causes.

Pustular inflammation of the skin may be set up by many parasitic invasions: a scratched mosquito bite may give entry to germs which may be further spread by auto-inoculation. A special form of pustule that is common on the west coast of Africa is called *Kra-kra* or *Craw-craw*. The appropriate treatment is to clean thoroughly with a disinfectant (perchloride of mercury, Dettol, or Milton), and then to put on a dry dressing of boracic powder. The pustules may require pricking. Infected linen, socks, &c., should be boiled or burnt.

Prickly Heat is an affection of the skin in which sweat secretion is obstructed by inflammation. Its symptoms are minute, discrete, bright red, slightly raised spots, closely crowded together. Sometimes there are a few minute blisters. Much of the body may be affected, but the parts most usually affected are the back, shoulders, forehead, and arms. The rash appears suddenly, preceded and accompanied, in other parts, by profuse sweating. It may cause almost intolerable pricking and tingling. Scratching may cause other skin infections, including boils. In mild cases the condition may last only a few days: in others it may worry till the advent of cooler weather. Sufferers should avoid flannel garments, iced drinks, and violent exercise. Glycerine of borax is a useful application. A tablespoonful of bicarbonate of soda in the bath is recommended. A coal-tar soap is of value in reducing irritation and possibly as a preventive.

2. *Dust*

Dust and sand are formidable in the northern territory. Celluloid eye-shades or sun spectacles are useful, for the eye is likely to suffer. If eyes become inflamed bathe them in cold, but boiled (preferably strained), water, adding a pinch of boracic powder or, failing that, a teaspoonful of salt if it is available. It is best to open and shut the eye in the water. After bathing the eyes a drop of castor oil in each eye is useful.

A sandstorm will penetrate almost everything, and it is important for this reason to keep food in closely shut and locked 'scoff' or 'chop' boxes if dust and sand are about.

Shorts, questionable clothing in the tropics, however comfortable they may be, are more than ever inadequate in an atmosphere of dust and mosquitoes.

3. *Water*

The invariable rule in French Equatorial Africa is never to drink water which has not been chlorinated or boiled. In the Forest Area stagnant pools are so full of scum and active life as to afford little temptation, but even flowing water may have passed over very dirty places. In the northern depression the ground is flooded and marshy after the rains, parched and burnt in the dry season. The marshy water is of course undrinkable, and in the dry times and places wells are often saline. Even when the well water does not taste salt it may have very drastic effects. In this northern country too the cattle industry is general and pools and wells are often fouled. If there is no time or opportunity to boil water it is best to avoid temptation by eating a few dried dates or else by chewing a fruit stone and making saliva active. If water from a pool must be drunk, it must be filtered through any available material. Even a handkerchief used as a filter will give a large measure of protection against guinea-worm—a disease which affects a very large number of the natives. Almost every experienced African traveller earmarks certain times of the day for tea. This is because tea implies boiling water and is the cleanest, most refreshing, and most cooling (in its effects) drink for the daytime.

4. *Natives*

Natives bring infection. Bantus and Negroes are cleaner personally than the half-Arab, whilst both are clean compared to the quarter-educated and permanently housed town boy. Moreover, here as

elsewhere, dirt increases with the cold, and the uplands of the north are the dirtiest. The infection natives may bring is of tick- and louse-borne diseases, malaria, sleeping-sickness, or intestinal complaints. Native houses, huts, and tents should always be avoided. Rest-houses may be well kept and appear clean, but may, none the less, harbour germs and vermin, and it is most important never to walk bare-foot in them. If camping with native servants or carriers, or near villages, keep them all down stream and down wind.

The greatest difficulty is with cook boys. The peculiar danger here is that of gastric trouble, because native ideas of the freshness and cleanliness of food are rudimentary. Some hints on the cookhouse may be helpful:

- a. The best and safest dinner is one shot that day, or the chicken whose neck has just been wrung.
- b. Meat bought by a native should be inspected personally before it is eaten.
- c. It is unwise to drink milk, locally prepared mineral waters, or water however clean it may look, before it is boiled. Indeed, never even clean teeth in it.
- d. Pawpaws or bananas plucked and eaten on the spot are a delight, but avoid fruit that may be tainted. It is wisest, indeed, to wash all fruit and vegetables (indeed anything to be eaten raw) in a solution of permanganate of potash before eating; a few grains to a basin of water is sufficient. Salads are best avoided, altogether.
- e. Native cooks can be trained to wash before preparing a meal, and to keep tanks, bottles, and corks clean. Experience proves that they learn if they find that cleanliness has a cash value.
- f. Tinned foodstuffs should be kept under lock and key. It is safest to open every tin oneself, and thus avoid promiscuous handling.
- g. Cookhouses must be inspected, and an incinerator kept busy in destroying scraps. Cookhouses must, naturally, be as far as possible from latrines.

If intestinal troubles become tiresome and no doctor is available, the best cure is rest, warmth, a dose of salts, and fasting (on a little boiled water) for a day or more. Ten grains of salol once or twice a day may be useful.

Latrines, in the field, should consist of small holes covered by a packing-case seat, the hole in which is always covered when not in use, and earth should be used in quantity.

5. Mosquitoes (*Malaria*)

Female mosquitoes by their bite transmit the infection of malaria, yellow fever, and dengue from man to man. Of these diseases malaria transmitted by the *Anopheles* mosquito is by far the most prevalent. Yellow fever and dengue are transmitted by mosquitoes that are rarely found far from human habitations. All mosquitoes breed in water; all stages of development from the egg to the fully formed insect are passed in water. When the female mosquito emerges she may go a long way in search of a blood meal: half a mile is a common distance. With a favouring wind she may travel farther afield.

It is but common sense to avoid camping near water or near native villages in which malaria-infected mosquitoes are almost certainly to be found. In standing camps the medical staff arrange for the draining and filling of mosquito breeding-places near by and for the regular treatment of standing water, that cannot be eliminated, with oil or other mosquito larvicide. The same precautions can, and indeed must, be taken during any prolonged stay in camp whether a doctor is available or not. Such measures may much reduce the chances of malaria infection, but a certain risk will probably remain. In the tropical and equatorial regions of French Equatorial Africa malaria may be transmitted at any time of the year. In the northern territory transmission is largely confined to the warmer months following the rains: the pools left after the subsidence of flood water in the ouadis may be breeding haunts of *Anopheles*.

The *Anopheles* mosquito rarely attacks in the daytime, but is aggressive from dusk to dawn. The vast majority of infective mosquito bites are inflicted during sleep. It follows that the proper use of a mosquito-net is the most important single personal prophylactic measure against malaria infection. Everyone exposed to infection should know and practise the proper use of the net and should see that it is kept in good repair. Many a man has got malaria by sleeping outside his blankets and allowing bare feet or hands to touch the inside of the mosquito-net. After dusk mosquito boots are a very great protection. If they are not available, continue to wear ordinary boots and gaiters or else tuck the trousers into the socks. Houses and huts should be supplied with wire-gauze windows and doors which, if intelligently used, offer almost complete protection.

For such men as have to be out after dark, certain preparations smeared on hands, face, neck, and ears are useful as mosquito repel-

lents. The anti-mosquito cream used in the British Army is said to be effective for 6 hours. Its composition is:

Oil of citronella	.	.	.	18.25 per cent.
Camphor	.	.	.	1.00 "
Cedarwood oil	.	.	.	9.00 "
Paraffin durum	.	.	.	26.75 "
Paraffin molle, white	.	.	.	45.00 "

It is issued in 1 oz. screw-top containers. It also affords protection against sand-flies.

The systematic daily use of insecticidal sprays indoors and in tents is a measure of proved value. The proprietary preparation Flit is effective. A useful formula is:

Paraffin, 2nd grade	.	.	.	124 oz.
Liq. ext. of pyrethrum	.	.	.	2 "
Carbon tetrachloride	.	.	.	4 "
Oil of citronella	.	.	.	8 "
Petrol	.	.	.	22 "

Finally, in countries in which malaria is prevalent every one should take 5 grains of quinine each day. This will not secure immunity from malaria infection but it will result in a vast, if not total, reduction in the number of clinical attacks of malaria. It is wise to begin taking quinine every second day for a week before arrival, and to leave off in the same gradual way.

If a doctor is not available, treat a case of malaria by rest in bed, a dose of salts, 15 grains of quinine a day for 5 days, and light diet.

Synthetic preparations that are of great value in the treatment of malaria—atebrin and plasmoquine—should only be given under medical supervision.

6. *The Tsetse-fly*

Sleeping-sickness is dealt with in the preceding section, and at length because of its prevalence in the forest belt. It remains only to note that this fly may attack quite noiselessly, and tends to get under shelter as quickly as possible. For those reasons shorts, or wide open sleeves, are a dangerous invitation. It is common enough to be bitten two or three times, inside shorts, or on the neck under the shade of the helmet, before the irritation gives warning.

7. *Snakes*

Poisonous snakes are not uncommon, but death from snake-bite is a contingency that need cause but little concern. Many a doctor has spent a lifetime practising in countries in which poisonous snakes abound but has never been called upon to treat a case of snake-bite. Very few poisonous snakes will deliberately attack a human being unless molested. Many snakes are not poisonous. Should one be bitten by a poisonous snake the degree of danger depends on the amount of poison injected (greater in the case of large and vigorous snakes), the state of physical fitness of the person bitten, and the site and depth of the bite. Snake-bite is followed by immediate pain and burning and progressive swelling at the seat of the bite, and the discharge of blood-stained serum from the wound. Fainting may occur, but may only be induced by fright. It has been known to occur in the case of bites by harmless snakes. If a doctor is within easy reach, and if the bite is on one of the limbs, a tourniquet should be applied immediately above the bite: to be effective this must be done at once, for the poison is very rapidly absorbed. If a doctor is not available, do not apply a tourniquet. Amateur surgery, enlarging the wound and rubbing in powdered crystals of potassium permanganate, is not recommended. In practice potassium permanganate is of very little use, and a nasty wound will result. Keep the victim lying down and keep him warm. Alcoholic stimulants should be given. There is always the chance that the snake was non-poisonous, or that, if poisonous, it did not inject a lethal dose.

8. *Scorpions*

Scorpions are found in all tropical countries. They are generally nocturnal in habit. They are commonly found in rotten wood. They have been found in boots, on the bath-sponge, under the valise, and in clothes left on the ground. One should develop a habit of shaking boots and shoes before putting them on, and one should never walk about with bare feet. A scorpion sting may be extremely painful, but is not dangerous to a healthy adult. In very severe cases a stimulant may be given to the victim. The application of ammonia, or of an evaporating lotion, to the wound is all the treatment that is necessary in most cases.

9. *Tarantulas*

A few of the spider family can inflict poisonous bites on man, but the symptoms that follow such bites are commonly little more than

local irritation for which some soothing lotion is the only treatment required. For some tarantula bites, however, stimulants are necessary. Tarantulas have a habit of climbing and of dropping from the roof or tent-poles at night.

10. *Centipedes*

Centipedes, commonly 4 inches long, occasionally as much as 8 inches, are found everywhere in the tropics. They are commonly nocturnal in habit, but not always. They are often found in stables, but not infrequently enter houses. They too have a predilection for resting in boots and shoes. The poison they can inject is at the head end, not at the tail end as in scorpions. The application of ammonia, or of an evaporating lotion, is all the treatment that is required.

11. *The House-fly*

The house-fly is a real danger, because, being a foul feeder, it carries infection. By day Flit-sprays or fly-traps may keep a house or camp relatively clear. If time serves, windows and doors should be closed by muslin or, preferably, by dark perforated zinc or very fine mesh wire. A fly is frightened by dark mesh just as a bird is scared of black cotton over fruit bushes, and may be kept out even if the mesh is quite open enough to allow him to creep through. In camp, and especially under canvas, flies can be burnt by the score in the chill of the evening by passing a flame under them as they cling, half-stupefied, to wall or tent. A fly cooked and floating in the stew is repulsive but not infectious.

12. *Jiggers (Chigoe)*

The 'jigger' is a species of flea which burrows in the skin under a toe-nail or finger-nail. This is one further reason for never walking barefoot. Jiggers are met with on the Guinea coast, but prefer sandier places and are more common in the northern sandier parts. The cure is to have feet inspected at once if pain is felt, otherwise at stated intervals, by a boy who can deal with the trouble, and many natives can. The fleas can be removed whole, with a needle, and should then be burnt.

13. *Mad Dogs*

In tropical countries a dog bite should always be considered dangerous as rabies is frequent among animals and highly infectious. If the dog is obviously rabid it should be shot at once; and it is well

to send the brain of the dog to a Pasteur Institute for examination if possible. If rabies is doubtful, the dog should be tied up and kept under observation for 10 days. The patient's wound should be cauterized with pure carbolic acid. If there are reasonable grounds for believing the dog to have been rabid the patient should go to the nearest Pasteur Institute for anti-rabies treatment without delay.

14. Conclusion

There is no reason why Europeans should not flourish in the tropics, at any rate for a time, and enjoy the novel experience, but they should be inoculated, before leaving home, against typhoid, paratyphoid A and B, yellow fever, and tetanus. Once in French Equatorial Africa attention to the simple precautions outlined above, and a particular and rigid personal cleanliness, are essential. Moreover, open wounds, abrasions, and sores are an invitation in a country where all life, that of germs included, flourishes. All wounds must be cleaned, disinfected, and then covered. Elastoplast is very useful in that connexion.

Remember that a boot well fitting in England will be too small in West Africa. A stout, nailed boot is serviceable and one with india-rubber *sole* and nailed *heel* is better still. A canvas, rubber-soled, snipe boot is excellent, being both light and durable. The feet should be washed frequently and well dried. Picric acid hardens soft feet and is good for blisters, if an elastoplast dressing is not available.

For those whose wanderings may take them far from a doctor the following few medical stores are desirable: castor oil, Epsom salts, brandy and opium pills (for dysentery or diarrhoea), permanganate of potash, boracic powder, bicarbonate of soda, quinine, iodine, ammonia, aspirin, Dovers powder, salol, cotton-wool, anti-mosquito cream, Flit, zinc ointment, elastoplast field dressings (cuts *and* abrasions), bandages, safety-pins.

As a final caution, keep cool inside, however hot the skin. Care killed the cat, and worry is everyman's own personal fifth columnist.

CHAPTER VII

THE PEOPLE

THE bulk of the population are called Bantu because they speak one or other of the great family of languages called Bantu. These are found across Africa, south of what is known as 'the Bantu line', running roughly from the mouth of Rio del Rey to Mombasa. The evidence shows that the Bantu in French Equatorial Africa came from the east. They have since made innumerable local migrations and petty wars and are mixed in a pattern of shreds and patches. Inter-marriage between tribes and with slaves has produced new types which it is difficult to classify. Dispersed amongst the Bantu are small groups of Pygmies, who are kin to the Bushmen of South Africa.

The country to the north of the Bantu, stretching from the valley of the Nile to the Gulf of Guinea, is inhabited by Sudanese negroes, whose many languages are essentially different from Bantu. These negroes have also had migrations and wars, and their lands have been invaded by Arabs, Berbers, and Fulani. The last are supposed to have wheeled round North Africa before reaching Equatorial Africa via Senegal and Nigeria. Many of these invaders intermarried with the negroes, and the result is a series of mixed populations more or less influenced by Moslem culture. In the north-west tip of Chad Colony we find a small strain of Berber stock from the Mediterranean.

The differences between the peoples of French Equatorial Africa correspond to the differences in the country, and are largely the product of these (Fig. 3, p. 4). The northernmost part of Chad, down to about 15° N., i.e. some 40 miles north of Lake Chad, is desert and is inhabited by a few nomads and people of the oases, of Arab or mixed race. The hills in this area harbour the Berber stock. This may be called the camel country.

South of this lie the Grass Lands, the southern boundary of which runs roughly between the ninth and tenth parallels of latitude, i.e. some 200 miles south of Lake Chad. This grass country varies from north to south, but it is all more or less suitable for grazing, and may be called the cattle or pastoral country. This is the country of the Arabs and Fulani, and of the Sudanese negroes who have adopted Arab ways.

Farther south stretches the Bush, down to 4° N.; i.e. the latitude of the north coast of the Cameroons and the upper reaches of the Ubangi

river. This belt is sparsely covered with trees, and is often called the Orchard Bush. The northern edge of the Tsetse Fly Belt coincides roughly with the northern boundary of the Orchard Bush, which is, therefore, unsuitable for cattle. It is peopled by Bantu engaged in agriculture or river fishing. South of the Bush lies the Forest Belt, covering the remainder of French Equatorial Africa, with the exception of the Congo basin and the southern half of the coast, which are Bush rather than Forest. The Forest is the home of the Bantu and of the Pygmies.

[THE TRIBES

Desert Tribes

(FIG. 55)

The desert that lies within French Equatorial Africa is not utterly barren. It supports a small population, mostly of the Tédá or Tibu tribes (in Kanouri, *Toubou*, plural *Touboua*.) These are a Hamitic and negro mixture. Their Berber ancestry is seen in their straight noses, thin lips, and long black hair. Although they are of Berber descent they are hereditary enemies of the Tuareg. The purest type is found among the hills of Tibesti, where the harsh life has developed stern character. Seldom seen without their *shanger-mangors* or throwing knives, they also use the barbed javelin and dagger. Their women too carry arms, as befits a land of blood feuds.

Some of the Tédá grow dates in the oasis of Borkou, where they are called the *Amma Borkoua* or *Borkouda* and are in congenial company with Zouïa Arabs, fanatical supporters of the Senussi. The oasis dwellers are a conquered population and share the fruits with the nomads. They correspond to the *mesakin* or peasantry of Ouadai and the other negro sultanates. Other Tédá (the *Daza* or *Dazagada*) live nomad lives on the fringe of the grass country and breed camels for the caravan trade. Milk is their staple diet. By religion the Tédá are strict Moslems and have a distrust of strangers. They bury their dead with the head towards Mecca, while a marabout recites verses from the Koran. The marriage ceremonies of the Tédá of Tibesti include a realistic fight in which the bride's relatives try to prevent the groom from taking the bride.

The hills of Ennedi, to the east, are shared by Tédá and Arabs with Baelé or Bideyat (sing. *Bidey*), but these aboriginals, although recent converts to Islam, do not share the Prophet's prejudice against alcohol and have no special love for Arabs.

As the barren lands become grassier the camel-nomads give place to

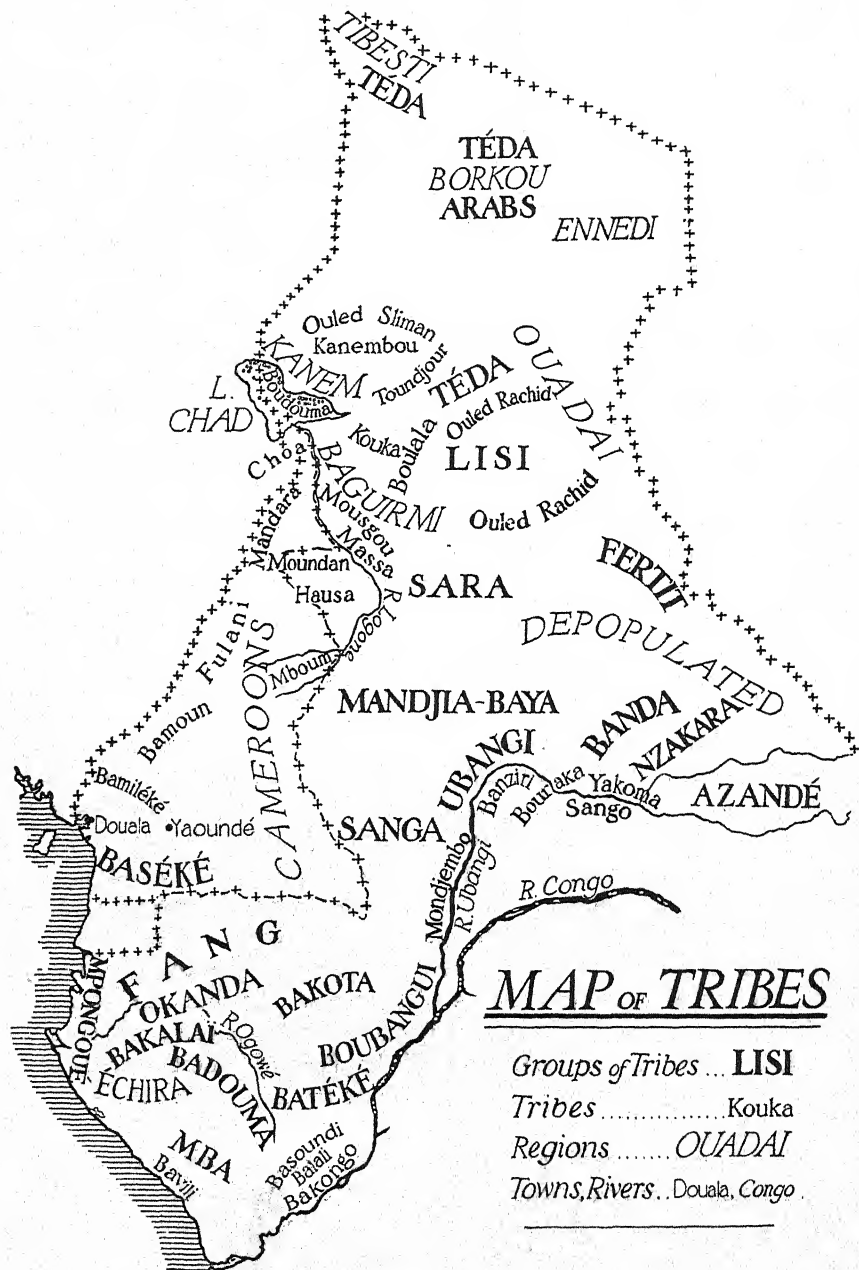


FIG. 55

Arab cattle-nomads. The pure Arab stock has straight features and a sallow complexion and is smaller of bone than the Berber. The Arabs, however, are not fastidious, and have freely intermarried with Sudanese. As a result some are negroid and black-skinned. The nomad Arabs lead a patriarchal life, living in mat tents shaped like Nissen huts, guarded by their savage dogs and moving from place to place in search of grass. As watering-places are few, they have to dig wells. The sedentary Arabs, whose houses are of mud, live in towns surrounded by districts of Sudanese negroes. They are dirty and superstitious. The nomads are of purer blood and more orthodox and fanatical.

The Arabs are split up into different and mutually suspicious tribes. The Tunjur Arabs do not refer to themselves as Arabs but as Tunjur. They hail from Tunisia and are descended from the Beni Hilal. Now they are found in Kanem and Ouadai. Their colour varies from a light tint to black, but is usually bronze. Although Moslems, they allow themselves fermented millet and wine made of dates.

Another Arab tribe is the Ouled Sliman, who came from Fezzan and installed themselves to the north of Lake Chad. Their skins are generally light in colour. They can muster some six hundred fighting men, armed with guns, and were great robbers before the French came.

The most numerous Arab tribe in Central Africa is the Choa (Shuwa), but they are disunited and dispersed. Many live across the Nigerian frontier. Some of the Choa (the *Hassaouna*) came from Tripolitania; others (the *Djoheina*) by way of Kordofan and Darfur. They have settled peaceably, in small villages, and have few fire-arms. The Ouled Rashid (or Rachid), a large tribe of Arabs who live in the middle of Chad Colony, belong to the *Djoheina*. The Choa are divided by their mode of life into two groups. The *Choa Abballa* are nomads, with camels, sheep, and goats. They are mostly pure-bred and light in colour. The *Choa Baggara* are cattle-people and drink sour milk. They have intermarried with local tribes, are often black-skinned, and are sedentary in their habits.

Tribes of the Grasslands

A feature of the pastoral belt is the existence of negro states, sometimes called sultanates because they have adopted Moslem forms. The three outstanding states are Ouadai, Baguirmi, and Kanem, which were occupied by the French round about 1900,

and since then have been shorn of their powers. These states have an organization of which Ouadai may be taken as a type.

The population is divided into two classes—an upper class called *hourin* and the peasantry or *mesakin*. There was also formerly a slave class (*abyd*). The sultan lives in a *tata*, or palace (Fig. 60), surrounded by mud walls. The Sultan of Ouadai has the title of *Kolak*. In his palmy days he could lodge 1,400 followers and stable 200 horses inside the grounds of his *tata*, and governed his provinces through feudal chiefs called *agad*, district chiefs (*meltik* or *tandjak*), and village headmen (*mandjak*).

Conspicuous among pastoral peoples are the Fulani or Fula, to give them the names by which they are best known to us; but they have many *aliases*. Their name for themselves is Fulbe or Foulbé (sing. *Pouullo*). The French call them Peuls. They are known to the Hausa as the Fulani or Fulawa and to the Kanouri as the Fellata or Filata. Their origin is unknown; perhaps in Western Asia, but they have been in Africa for certainly well over 1,000 years. In appearance they are a gipsy type. Although intermarriage has made them dark, they retain their slender build, whilst features and hair bear witness to their non-negroid origin. They are generally monogamous.

A century ago the Fulani cavalry swept the north of Nigeria and of the Cameroons. Some of their descendants are still the ruling classes in these parts, and the rest are a nation of herdsmen known as the Cow Fulani, whose villages are dispersed throughout Central Africa. The Cow Fulani are purer bred and more quietly aloof than the sedentary and politically more powerful ruling class. Throughout the Cameroons the Fulani are found in groups. One large group, called the Binder Foulbé, dwells between the Cameroons and the river Logone.

The Fulani remind one of the Normans. Both races had a flair for administration. Both set up a feudal system based on military service. The Fulani chiefs, or *lamido*, in the Cameroons, were under the Emir of Yola who was the vassal of the Sultan of Sokoto. When the Germans governed the Cameroons they disliked their chiefs being subordinate to authorities in British Nigeria, but they were unable to destroy the Fulani native administration.

As the traveller approaches Lake Chad from the north he finds himself in the country of Kanem. The population increases and, although he is in the Cattle Belt, the basin drained by the lake is full of farms. The peasantry, called the Kanembou, are first and foremost farmers, despising craftsmen, such as dyers and weavers, and especially

smiths, because smiths forge arrowheads and the Kanembou despise bows and arrows. They came from Tibesti many centuries ago and, as might be expected from their origin, are practising Moslems. Civil wars forced a section to Bornou, where their tongue developed into the widespread Kanouri language of the Sudan.

The Boudouma, another cattle-owning people, are reputed to combine farming with piracy. Certainly their homes on the islands of Lake Chad would make good lairs. A ripple of white backs and crescent horns on a creek of Lake Chad means that their cattle are changing their pastures, with the herdsman swimming alongside. When the Boudouma are not farming or fishing they collect natron (native sesquicarbonate of soda) from the marshes of Chad, and occasionally they say the Moslem prayers. They are also known as the Yédéna or Yédina, and a large section are called the Kouri.

Between Kanem and Ouadai lies the country of Baguirmi. This was an ancient state and still shows its social organization. The Baguirmi are one of a group of tribes, known collectively as the Lisi, which includes the Boulala, the Kouka, and the Medogo, all of whom have kindred speech and traditions. They are a race of industrious herdsman and farmers and take their Islam easily: the Kouka eat wart-hog.

This belt of grazing and partly agricultural country includes the French Cameroons where the grassy uplands are packed with cattle. Part of this country was conquered by the Fulani a century ago and takes its name, Adamaoua, from a Fulani leader named Adama. There is a large negroid population centred in towns of from 3,000 to 20,000 inhabitants, with chiefs (*lamido*) of Fulani descent, who, like the sultans of Chad, have their courts and officers.

The Cameroon sultanates of Ngaoundéré, Tibati, and Banyo fell before the Fulani, coming from the north. Ngaoundéré is the headquarters of the Mboum tribe (Fig. 56). The Bamoun stopped the invaders' advance. At first the Bamoun were driven out of their capital, Foubam, by the Fulani, who went north to fetch their families. When they returned they were faced with 18 miles of town wall hastily built by the Bamoun, and in the assault the Fulani commander was killed and left his skull as a trophy. This was the limit of the Fulani invasion. The Bamoun are advanced in arts and crafts, and in modern times an enterprising sultan named Njoja (Fig. 56), who died in 1933, invented an alphabet. They say that some of the characters are taken from marks on packing cases. At the other end of the scale

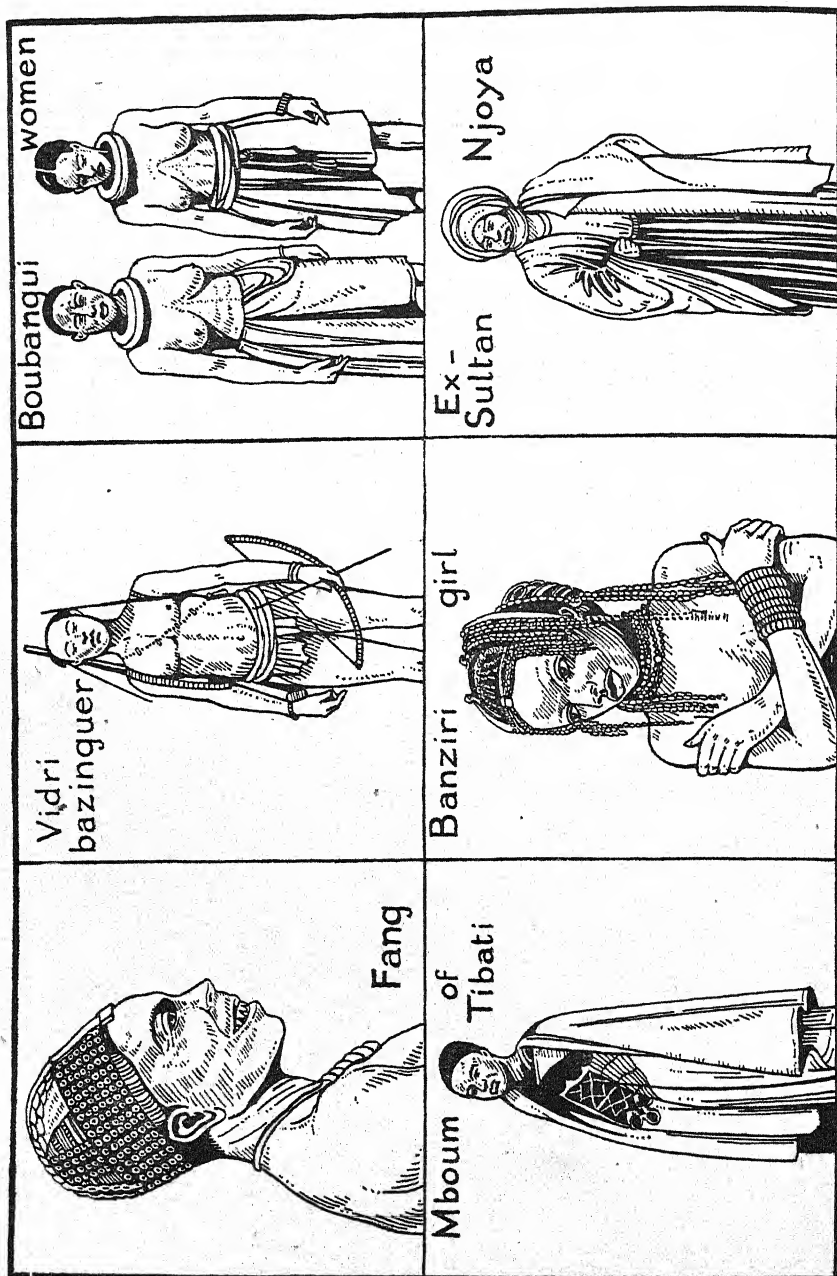


FIG. 56

are the Bamiléké of the south Cameroons, who are very backward and seem rather to belong to the Forest.

A well-known figure in West Central Africa is the Hausa pedlar, filing along the roads or squatting beside his packages. He is to be met with throughout French Equatorial Africa (except in the Forest), and Hausa, Fulani, and Baguirmi drovers also bring cattle, sheep, and goats as far south as Bangui.

The Hausa have their home in the northern provinces of Nigeria, but have overflowed into the neighbouring territories where they are to be met with, not only as pedlars but also in communities, occupying their own quarter or *zongo* and following Moslem customs under their own chiefs. There are many colonies of Hausa in the French Cameroons, varying from a couple of hundred to several thousand.

The Hausa are great traders and excellent soldiers. In the ranks of the Nigeria Regiment and Gold Coast Regiment of the Royal West African Frontier Force, they have distinguished themselves in the War of 1914-18 and in the present war. They have a long and distinguished history. In the Middle Ages they attained great power and were divided into seven states known as the *Hausa bokoy*. In the early nineteenth century they were conquered by the Fulani who founded the empire of Sokoto and became the overlords of the Hausa. They now number some millions, and, whilst obviously negroid, show strong traces of Arab and Fulani blood.

Bush Tribes

The Logone river tribes live on the border between the open country and the Bush, but as they resisted the Moslem invaders and clung to their own way of life, they belong, rather, to the Bush. They are related in speech, and build characteristic conical mud huts and bottle-shaped granaries (Fig. 59), in compact villages. Stock-breeding and agriculture occupy their time, and the riverside populations are devoted to fishing. The Massa, the Mousgou, and the Moundan are the best-known tribes.

Farther west, and between the rivers Logone and Shari, lies the country of the Sara, who take their name from the mat screens (*sara*) with which they enclose the yards of their conical huts. Their barns are also characteristic, being shaped like large straw beehives and placed on platforms supported by posts. The Sara are noted for the goatskins with which they gird themselves and which flap behind them like the tail of a shirt. They are a tall race. The women have a

slight extra plumpness behind and some of them insert disks—Sundu (French, *Soundou*)—in their lips (see Fig. 57 and page 220). The Sara are good farmers, and, in spite of noxious flies, rear a sturdy little breed of horses.

To the south of the Sara is a large area occupied by the Banda, the Mandjia, and the Baya. The two last are so closely related that they are sometimes grouped as the Mandjia-Baya. These groups are inter-mixed, and the town of Ndélé is a mosaic of tribes raided by the Sultan of Dar el Kouti.

There are some vigorous tribes living in the hill country bordering on the Egyptian Sudan, but, owing to their remote situation, little is known about them and they have not been properly classified. They occupy the country of Fertit, and are known as the Fertit tribes.

At the east end of the Bush Belt and to the north of the river Ouellé the Nzakara and Azandé tribes live side by side. The latter are better known as the Niam Niam. They are a powerful tribe whose domains stretch beyond French territory. Their chiefs, who have real authority, assisted Captain Marchand with carriers when he made his bid to set up the French flag on the Nile. In their day the Azandé were slave-raiders and they are reputed still to indulge in cannibalism. They certainly like *araki* (spirit made from millet). Their main interest is in farming and not in fishing or paddling. Many of them cannot swim. This is probably because most of their country lies inland. Some of them have features of a semitic cast. The Nzakara resemble the Azandé, but claim a different origin. They bring us to the end of the Bush Belt.

Waterside Tribes

The next belt is mainly covered by the Great Forest, and it is difficult to put the population into compartments. To the south-east of the Forest roll the Congo and its tributary the Ubangi, and there are riverside peoples who might be described as Congolese rather than as forest-dwellers. It will be convenient to start with the river peoples, beginning at the upper waters of the M'Bomou and the Ubangi. The next group, therefore, is the peoples of the Ubangi waterside. Their occupations naturally are fishing and trading. The Yakoma (Fig. 57), Banziri (Fig. 56), Bouraka, and Sango have supplied the French with paddlers, and some Yakoma carriers crossed Africa with Marchand. These tribesmen are remarkable for the curious

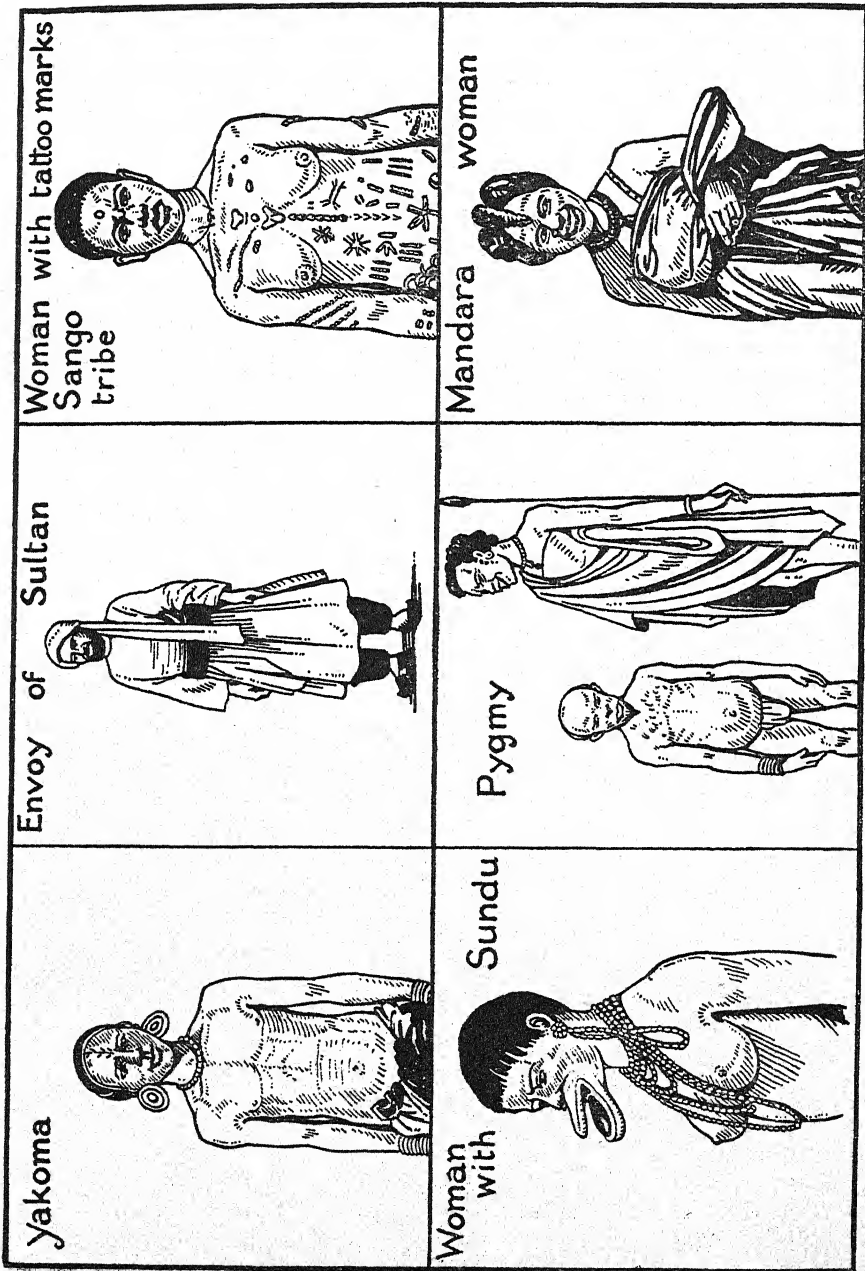


FIG. 57

fashion of sinking rings into their ears till the lobes resemble small quoits (Fig. 57). The Mondjembo is another tribe which has become friendly to the French in recent years. In the reaches of the middle Sanga river there is a group of tribes commonly known as the Sanga-Sanga.

Proceeding downstream, one meets the Boubangi on the lower reaches of the Ubangi and the Batéké on the banks of the Congo. The Boubangi live in a watery country which is liable to floods. They build their villages, therefore, on mounds, and practise fishing and trading instead of farming. Native dried fish smells strong and is known on the coast as 'stink fish'. The Boubangi find a market for this at Brazzaville. The women are noted for their heavy metal collars (Fig. 56). Unfortunately, this tribe has been reduced by leprosy, sleeping sickness, and other diseases.

It has been said that no story of an African expedition is complete without mention of a steamer carried inland in sections and launched on a river or lake. The Batéké helped to carry some of these sections in the days of French exploration. They were then doing well as middlemen between the Boubangi and the coast tribes, but French occupation has ruined their business. They continue to trade and farm, and their villages are set among their farms and connected by tracks with the waterside. To the river passenger the country appears deserted.

As the Congo nears the sea, its north bank is inhabited by a set of tribes who have long been in contact with the French. Ethnologists group these as the Mba, but they are better known by their tribal names. The Bakongo, Balali, and Basoundi have supplied labourers for railway construction. The majority of the last tribe live in Belgian Congo. The Bavili are of interest because they inhabit what was once the kingdom of Loango. In fact, they generally go under that name. They have supplied the French trading factories with labourers and servants who are found dotted along the west coast of Africa, from Dakar to St. Paul de Loanda.

The Ogowé is the largest river between the Niger and the Congo, and is noted for certain tribes who live by fishing and the sale of palm oil and loin-cloths woven of raffia. It was the habit of the French, when transporting men and stores by river, to send their canoes in convoys and these were manned by Badouma paddlers. The Echira resisted the French, who had a good opinion of their vigour and intelligence. The Okanda have borrowed from French civilization and build roomy huts with verandas.

Forest Tribes

The remainder of French Equatorial Africa and the Cameroons, save for a coastal strip, is occupied by the tribes of the Great Forest. Of these the most outstanding are the Fang or Pahouins.

The Fang are inveterate migrants (Fig. 56). Like neighbouring Bantu tribes they came from the north-east. Early in the nineteenth century their progress south was hastened by the conquests of the Fulani north of them. Now they occupy a vast tract astride the boundary between the Cameroons and Gabon. Within their territory they shift their villages every five to eight years, when the land gets exhausted or the chief dies. As is usual in the forest, the villages are far apart and not under tribal chiefs. The villages of the Fang are distinctive (*see* p. 222). Like most Bantu they have also camps where they live when hunting and fishing, or doing a little farming. They are mighty hunters, but will clear a patch for their women to plant when they have placed their guns in safety. They are tall, hardy, and well-built, and their intelligence has enabled them to adapt themselves to changing conditions. It is noteworthy that they never had slaves. They have a peculiar currency in the form of tiny hatchet heads (*bikki*) which is used in paying dowry.

The Bakalaï are a hunting tribe to the south of the Fang and, like them, move their villages when chiefs die. The Bakota occupy an area to the east of the Fang but are not so peripatetic. They make extensive farms, besides practising the trades of potters, weavers, and basket-makers. They are intelligent, and their villages are large and clean. Unlike the Fang, they employed slaves, probably to work their farms.

Coast Tribes

The seaports are very mixed and are inhabited by Europeans and by Africans from other parts of the coast and from the interior, as well as by local tribes. The extent of European settlement is dealt with on p. 208. The natives from the interior belong to trading peoples, such as the Hausa. Amongst foreigners who are likely to be met are Yoruba and Krooboys, or Kru. The Yoruba come from Lagos and its populous hinterland, and are known to the French as the Nago. They are keen traders and may be recognized by the gap in the middle of their upper teeth. The Krooboys' chief occupation is to work the white man's steamers and beaches. They come from Liberia, in gangs under their headmen, and when their time has expired they

return with the goods in which they have invested their savings. They are likeable, loyal, thievish rascals whose language is so uncouth that they are usually given trade names, such as Fine Country, Black Man Trouble, Bad'un, and so on. Many have served in H.M. gunboats on the coast.

The Doualas, who inhabit the chief seaport, were restive under the administration of the Germans, who finally hanged their chief for treason.

One of the best-known coast tribes is the Pongoué or Mpongoué, which inhabits the hinterland of Port Gentil, at the mouth of the Ogowé river. Sometimes the Pongoué and related tribes are called the Omyéné, from the name of their common language. The Pongoué tribesmen are good-looking Africans, of bronze complexion, slender build, and not disfigured by tattooing. They occupy certain quarters of Libreville and have acquired European tastes.

Pygmies

Throughout the Great Forest are to be found encampments of Pygmies (*Negrillos* or *Babinga*, Fig. 57). They are depicted on ancient Egyptian tombs, and Herodotus refers to a party of five Nasamonians who crossed the Sahara about 450 B.C. and encountered small dark people who seem to have been Pygmies. They have been exterminated or absorbed in North Central Africa and now live in the Forest, where they were discovered in 1865 by Paul du Chaillu.

The Pygmies are noted for their small stature, which on the average is from 4 ft. 4 in. to 4 ft. 9 in. They have other characteristics which distinguish them from their negro neighbours. Their complexions are light. They are thick-set in build and their bodies are hairy. The trunk is long and the legs short. The chest and pelvis are broader than with the negro. Their hands, feet, and faces are larger and their necks shorter. The nose is very characteristic. The base is extremely broad and from a front view resembles a large triangle. They do not tattoo their bodies, are not cannibals, and have no slaves. Moreover, they are mainly monogamous. Very little is known about their religion except that they have a vague idea of a sky god and believe that deceased headmen are reincarnated as bush-pigs and snakes.

The Pygmies are found living amongst the Bantu, just as rats and puffins share burrows without interfering with one another. They are very primitive people. A skin loin-covering constitutes their wardrobe. Their huts are like haystacks, with a tunnel at the entrance,

and there are not more than some half-dozen huts in a camp. They have no ornaments, no cooking utensils, and no agriculture, but collect honey and wild fruits. Dogs are their only domestic animals. Their one occupation is hunting, and they have the keen sense of smell of a hound.

Bows and poisoned arrows and a long javelin are their weapons. After a good shot a Pygmy will pat his right arm and crow. When a Bantu sees a bunch of his bananas transfixed by a Pygmy arrow he knows that it is earmarked for barter and leaves it alone.

DISTRIBUTION

French Equatorial Africa and Cameroons do not teem with human life. Although they extend to a million square miles, they have only six million inhabitants. There are several reasons for this.

A large area of the north is desert—not the utter desert of the Sahara, but sand-dunes, with a slight bristle of grass and thorn and an occasional oasis. Life there depends upon tapping underground water. The French count as desert those lands which have less than one inhabitant per 2 square kilometres. This works out at slightly over $1\frac{1}{4}$ persons per square mile. If we adopt this scale, three-fifths of Chad Colony is desert.

There are also regions which have been swept almost clean of inhabitants by centuries of slave-raiding. The largest of these is in the Dar Fertit (Land of Slaves), in the region of Ubangi-Shari. Nearly a quarter of that region is man-made desert. Altogether, whether due to nature or to man, one-third of the total area of French Equatorial Africa and Cameroons is practically uninhabited.

Not only is the population sparse, but it is doubtful whether it is increasing. It was certainly on the decrease before the French brought law and order, and, in the opinion of certain experienced traders and missionaries, it is still decreasing. The outstanding cause of the smallness of the population is the terribly high rate of infantile mortality which, according to a report of two years' child-welfare work in Moyen Congo, published in 1938 and mentioned on page 178, probably exceeds 500 per 1,000 live births. This is mainly due to malaria, and partly to premature births, respiratory diseases, whooping cough, and the malnutrition of the mothers. A wise policy of administration, if persisted in, should improve matters, but the question does arise whether these regions are favourable to the growth of a large population.

The density of the population varies greatly from one district to another (Fig. 60). The densest areas of any size are the north of the Cameroons, the north-west of Ubangi-Shari, the hinterland of Douala, and the district around Yaoundé. There are also dense patches north of Lake Chad on the river Ubangi, and north and west of Brazzaville. The countries of the Sara tribes and of the Bakongo have populations which reach 50 per square mile. The Cameroons are heavily populated in some places and depopulated in others. Their most populous parts (as in Equatorial Africa generally) are the high plateaux—the healthiest and safest parts of the country.

The bulk of the population live in villages which vary in size from a pygmy camp of five huts to a riverside village of 100 huts or more. There are, however, a few large towns. Douala has 31,000 inhabitants, Bangui has a population of 23,700, Garoua has 7,000, and Libreville has 6,100. The population of Brazzaville is about 25,000. Lamy has a racially mixed population of 6,000. Abeché had 28,000, at the 1912 census, but only 6,000 at the 1915 census. This was due to the repatriation of 12,000 domestic slaves and to the great famine of 1913-14.

According to the census taken in French Equatorial Africa on 1 July 1936, and the Annual Report on the Cameroons to the League of Nations, for 1938, which gives the population on 1 January 1939, the total European and native population of the different territories is as follows:

	<i>Area in sq. miles</i>	<i>Population</i>	<i>Density per square mile</i>
Gabon . . .	106,500	409,700	3·8
Moyen Congo . .	159,700	746,800	4·6
Ubangi-Shari . .	214,600	833,900	3·8
Chad . . .	386,900	1,432,600	3·7
Cameroons . . .	161,200	2,609,500	16·1
Totals . . .	1,028,900	6,032,500	..

The latest sources give the European population of French Equatorial Africa as 4,949 and of the Cameroons as 3,227, making a total of 8,176. The majority of these were French, but British, Americans, Swiss, Syrians, Greeks, and other nationalities were represented. The European population fluctuates widely and depends upon the international situation.

These figures are only approximate and censuses of the native population have in the past proved so unreliable that experienced

DENSITY OF POPULATION

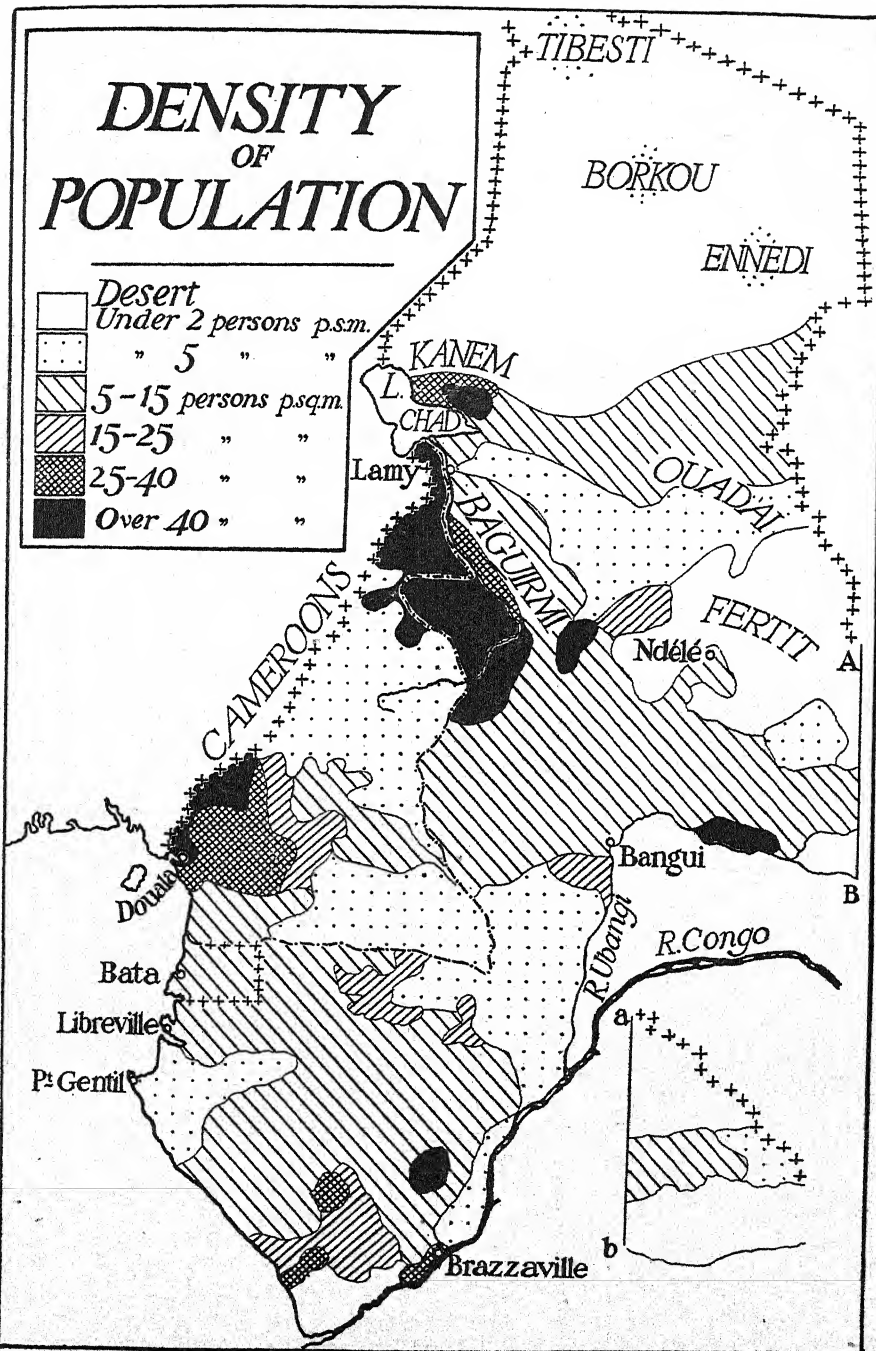
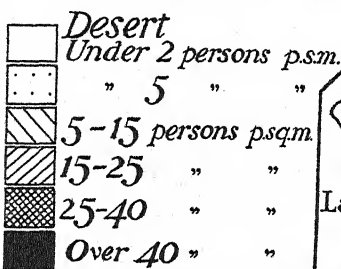


FIG. 58

administrators have been forced to form their own estimates. It is difficult to count a native population, and the methods adopted in the past have been rough and ready. A District Commissioner in West Africa has been known to fire a shot and count the crowd which gathered. When direct taxes are collected, as in French Equatorial Africa, there are some data to go on. Even so, infants and old people who cannot pay are omitted and many adults are absent from their homes. This is especially true of farming districts where large numbers live temporarily on outlying farms. For example, the census of Ibadan in Nigeria, which claimed to be the largest native town in Africa, showed a surprisingly low total; but the town lies in an agricultural district and it was known that vast numbers of the townspeople were at work in the country farms.

It has been estimated that, including children, the total population of French Equatorial Africa amounted in 1936 to 3,503,000. On this scale, the total population of French Equatorial Africa and Cameroons would be at least 6,163,000. If we add 12 per cent. for those who escape the census (as the Belgians estimate in the Congo) the total would be over 6,900,000.

HABITS AND CUSTOMS

LANGUAGE

As is stated in Chapter IX, French educational policy aims at making French the *lingua franca* of the territory. No Government grants are given to schools which teach in the vernacular. It is, no doubt, true that there is no alternative if a *lingua franca* has to be found. There is no local equivalent to the Swahili of East Africa, or even to the Hausa of the Northern Provinces of Nigeria, and it is also true that educational matter and books cannot be available in quantity for all the languages and dialects of so many tribes. At the back of the differences in the educational policies of colonizing Powers, however, is the question as to how best the population may be served. Is it best to improve man-power and capacity for output by sacrificing native custom and speech, or is it best to build upon these very factors and to sacrifice many of the advantages of uniformity and of modern progress? However that may be, French is spreading, and may be said to have ousted the pidgin English which was the *lingua franca* of the coast for many years. The large number of missionary schools which do not teach through the medium of French is due to the extent

of British missionary enterprise in the Cameroons before that territory passed into German hands.

Unquestionably, there must be Moslem schools in the Chad area and throughout the north. These minor schools are devoted to reading or reciting the Koran and attempt little else. It has not been found possible to obtain details as to their number or distribution.

There are no statistics to prove the spread of literacy, but it can be no exaggeration to say that the literates do not exceed a fraction of one per cent.

Sudanese has been subdivided into groups, some of which are spoken by small communities. It is sufficient to mention the languages which owing to the numbers who speak them, or their widespread use, are of practical importance.

In Chad Colony, Tourkou, based on Arabic, is the language of trade. Arabic is said to be understood throughout eastern Chad. Kanouri is spoken by a million natives in Tibesti, Kanem, Bornou, and round Lake Chad. Sara is spoken along extensive reaches of the middle Shari.

Hausa is the language of some millions in the Northern Provinces of Nigeria and is widely spoken by Hausa colonies in French Equatorial Africa and the Cameroons. Fulani is spoken by an aristocracy in the Fulani states of the Cameroons and by enclaves of pastoral populations in Chad Colony.

The term Bantu, as has been mentioned, is applied to a family of languages spoken south of the Bantu line. The family has been divided and subdivided in a way which is more of scientific than of practical value. Sango is one of the most widespread languages of French Equatorial Africa as the French recruited paddlers and clerks from tribes who spoke this language. In the interior, Bangala has spread up the rivers. Ifoumou is spoken in the environs of Brazzaville, and Kivili (or Fiote, or Loango) and Bakongo are used between Brazzaville and the coast. Up the Ogowé, the paddlers have spread a dialect based on Mpongoué.

Fang and some languages of the French Cameroons are akin to Bantu, but are sometimes classified as a separate West African group.

As most conversations between Europeans and natives take place through interpreters, great care has to be exercised. This is especially important when the dialect is an obscure one and a double interpretation is required. Questions must be short and simple. No uneducated African native understands a hypothetical question.

RELIGION

Islam

Islam, in the form of the Malikite sect, entered the country by conquest and infiltration. The majority of the population have adopted the religion conditionally and cling to their native intoxicants. It is a saying in Ouadai that *merissa* (native beer) is to the Ouadaïen what the skin is to the body, and their spiritual leader had to give way and announce that 'in response to his prayers Allah had deigned to make an exception in favour of his faithful Ouadaïens'. These so-called Moslems have adopted Arab dress and sometimes Arab names, but they are ignorant of the creed of their nominal religion and are not practising Moslems. Possibly they conformed to save themselves from slave-raiding, for a Moslem may not sell his fellow believer. To avoid breaking this rule the Arab slave traders deliberately kept a check on the spread of their faith so that they might have pagan preserves.

Islam has given rise to brotherhoods, resembling Christian religious orders. Two brotherhoods are represented in Chad Colony—the Tidjani and the Senussi. The peoples of Baguirmi and of Kanem call themselves Tidjani, while the nomads, oasis-dwellers, and the majority of the natives of Ouadai are adherents of the Senussi, who have their headquarters in Kufara (Kufra). This brotherhood was founded by the Sheikh es Senussi, who in 1843 built a monastery in Cyrenaica. The movement was puritan and religious in origin, but became political and opposed to the French. During the War of 1914-18 the Senussi were egged on by the Germans and Turks to invade Egypt, but failed in this attempt. The brotherhood of the Tidjani was founded by an Algerian, Abu el Abbas Ahmad, great-grandson of Salim Tidjani (1737-1815), who made his headquarters at Fez, in Morocco, and is buried there. The most important doctrine of the sect is that of submission to the established government, whence, ever since the French conquest of Algeria, the Algerian members have been ordinarily on good terms with French authority. In Morocco, however, they are anti-European. The Hausa Moslems look to the Sultan of Sokoto (*Sarkin Musulmi*) as their spiritual head.

Islam raises the pagan African to a higher level and suppresses some of his worst practices, e.g. cannibalism. For this reason and because of its picturesque way of life, it has won sympathy from administrators. It must be borne in mind, however, that it opposes to western civilization a culture which is foreign and unprogressive. Mahomet, himself a camel driver, said that the use of the plough debased the

soul of a people. Islam in Africa seems to be stationary and likely to remain so unless it receives preferential treatment.

Animism

The traveller may notice egg-shells at the foot of wayside mounds. These are offerings. An African town council may decide that an ancient tree, in the middle of a street, is an obstruction and must be cut down. Fetish priests are sent for, to pacify the tree or the spirit of the tree. A policeman disappears one night from the quayside: a native is accused of having transformed himself into a crocodile and dragged the man into the water. A servant complains that an enemy has made 'medicine' against him. He points to a small bundle of parings and peelings, seeds and other rubbish, lying on the threshold of his room. Through incidents like these, glimpses are obtained of the natives' ideas of the supernatural which, to us, are difficult to grasp. These remarks apply to the non-Christian, non-Moslem part of the community, which is the largest section.

The Bantu or negro looks out into the world and sees himself in the foreground—a body inhabited by a personality, which may be the personality of one of his ancestors and which is capable of withdrawing temporarily from the body and reincarnating itself in an animal, always, it seems, a noxious animal. He finds that his actions encounter opposing forces in nature—floods, rocks, lightning, trees, &c. These are strong and dangerous and have characters which are to be placated, or else protection is to be sought in charms. In the background is a shadowy Creator, who set the ball a-rolling, but is thought to concern himself little with the results. Death does not end all. The deceased is thought of as still dwelling in the village. He has appetites, and food is set out for him. This is necessary because he, too, is considered to have become of a malevolent disposition, more likely to resent disrespect by doing some revengeful act than to perform some act of benevolence. The wisdom of the community, in these matters, is concentrated in a class, sometimes called fetish priests or medicine-men. These men, whose office may be hereditary, have collected such scraps of scientific knowledge as have been discovered by their tribe. They claim to produce remedies and charms against the hostile powers of nature and the contrivances of enemies, living and dead; to have the power of discovering witches, and to be able to prove it through trials by ordeal. Their equipment includes some knowledge of poisonous plants, in which the West African bush abounds.

This system of belief, which prevails among the pagan Bantu and

negro natives of the French Cameroons and Equatorial Africa, is sometimes called Animism, because it is a belief in nature spirits.

Christian Missions

Both Protestant and Roman Catholic missionaries carry on work in the southern half of Equatorial Africa and the Cameroons. The Roman Catholics are French. The Protestants are of various nationalities. Chad was supposed to be under the charge of the Italian Fathers at Khartum.

The mission of Les Pères du Saint Esprit was founded in Gabon in 1843 and now embraces three vicariates—Gabon (12 stations), French Congo (7 stations), and Upper French Congo (11 stations)—as well as a *préfecture apostolique* with its headquarters at Bangui. Four orders of nuns are at work in French Equatorial Africa and Cameroons.

Les Pères du Saint Esprit have vicariates at Yaoundé and Douala and some fourteen mission stations. In addition, there are, in the French Cameroons, Les Pères du Sacré Cœur de Saint Quentin, whose apostolic prefect at Foumbam controls six stations.

The Protestant missions are:

La Société des Missions Évangéliques de Paris, in Gabon (7 stations);

Norwegian Mission, in Cameroons (2 stations);

Swedish Mission at Brazzaville and in the basins of the Djoué and Niari (6 stations);

Baptist Mission of Orebro at Brazzaville and along the Sanga (4 stations);

American Mid-African Mission, in Ubangi-Shari (3 stations);

American Presbyterian Mission, in the Cameroons (14 stations), and

Africa Inland Mission, on the M'Bomou and at Léré (4 stations).

In 1929 there were in French Equatorial Africa and the French Cameroons 105 Protestant missionaries and 133 Roman Catholics (or 294, including lay brothers and nuns).

The Roman Catholics estimated the number of Catholics at 220,492, with 161,109 catechumens, while the Protestants, who only gave the number of their catechumens, put this at 66,054.

It is difficult to estimate the effect of this mission work, and opinions differ widely. One French administrator is most sanguine and estimates that (excluding infants and old persons) 26.9 per cent. of the population of Gabon have now been Christianized. Another authority

(also Christian) thinks that little impression has been made. There is general agreement, however, that the humanitarian labours of the missionaries have smoothed the paths of peace and of civilization.

WAY OF LIFE

MOSLEMS

French Equatorial Africa ranges from the Congo to the Sudan, and to pass from the former to the latter is to enter a new world—the world of Islam. It is also a return to feudalism and the Middle Ages. Here we meet Arab tribes and negroid populations who have adopted Moslem institutions. The Arabs, who are partly nomadic, retain their tribal organization under their sheikhs. The negroes have set up a series of petty sultanates in which the chief keeps a semi-oriental court. As Islam recognizes slavery, this institution formerly played a large part in the life of the community. Family life, marriage, succession, and the ownership of property are regulated by Koranic law, modified by native custom. Among the Baguirmi a horse or cow may be owned jointly, each owner having one or more legs of the animal, and the rights to the offspring are proportional. A joint-owner of a horse naturally keeps a sharp look-out that his property is not used for coursing elephants.

The Moslems of French Equatorial Africa and French Cameroons have their mosques, although many of these are only mud houses or huts. The call of the *muezzin* is heard at the hours of prayer, and the *imam* leads the prayers of the congregation. *Mallams* (scribes) teach little boys to repeat verses from the Koran or write out texts, to be worn in amulets as charms. Devout Moslems tell their beads; the undevout gamble at 'cha cha'; beggars solicit alms. Over all lies the shadow of the Prophet.

One of the chief changes that Islam makes in a pagan is to clothe him. The people on the edge of the Sudan wear clothes woven of native cotton. The men's dress consists of a skull cap, with or without a turban wrapped round it, a short-sleeved tunic, baggy trousers, sandals, and a loose gown or *riga*. Women wear a loose skirt, suspended from a string of waist beads, with a kerchief tied round the hips, a blouse or wrapper, and necklaces, but no hats. They are unveiled and by no means secluded.

The Têda dress like North African Moslems. The men shave their heads, wear a turban and cover their mouths with the *litham* (or veil), as a protection against sand. A tunic, trousers, sandals, and

perhaps a sheep-skin mantle, complete their wardrobe, except for Moslem amulets and charms. The women part their hair and let it hang in plaits, with the ends secured by balls of wax. They wear nose and ear studs of silver, stain their nails with henna, and darken their eyelids and lashes with kohl. The women have also adopted the negro custom of scarifying the body, but do not disfigure the face.

Moslems have inherited from the Jews an aversion to representations of men and animals. Their art consists chiefly of geometrical patterns and designs, based on Arabic script, some of them intricate. For music the Sudanese negroes employ horns, string instruments, and the *marimba* or native xylophone.

Architecture consists of round huts and mud houses with flat roofs. The fronts of the latter are moulded in patterns and the houses have a semi-oriental look. The Baguirmi build their huts of mud, while in the Chad region these are made of matting. Inside, is a bed of boards or thongs, under which the goats and sheep find a couch. Sheds are also erected, in which tradesmen ply their trades.

The northern peoples have horses and are fond of coursing wild ostriches and other game. They arm themselves and their horses with quilting, and the Hausa horsemen parade in chain armour which is said to be a relic of the Crusades. Besides guns, they use lances and throwing-knives. They also carry sheath-knives on their wrists, and the tribe of the Haddad Michab of Kanem is noted for its double bow and poisoned arrows.

BANTU

Tribal Life

If life in the north is medieval, parts of the south suggest a return to the Stone Age. The African is being hustled over centuries of history. He comes naked out of the Bush and goes to work in a garage.

At puberty, boys and girls go into seclusion and are initiated into the adult life of the tribe. This is done by age-groups, and there is amongst the members of these groups a feeling of *esprit de corps*. Circumcision is general, and the rite is usually performed after initiation, but with some tribes it takes place earlier.

It is remarkable what differences of organization there are in West Central Africa. In some parts there are chiefs who have authority. In others there are no real chiefs but only village headmen. Chiefs of some importance are to be found up the Ubangi and M'Bomou

rivers, and the Ubangi sultans have their native guards (*bazinguer*) (Fig. 56). On the other hand, there are forest villages which live in complete isolation. Between the two extremes come small tribes under chiefs whose powers are not extensive.

The average Equatorial African community is democratic, and the chief resembles a mayor rather than a monarch. He represents the community and can only act when the community backs him. When he has the reputation of being a fetish priest, his authority is increased. Among certain tribes such as the Batéké, he may travel in a hammock, wearing a monkey-skin cap and holding an elephant tail whisk, but generally he has no special insignia. He receives certain dues and court fees. It is common for him to be given a portion of an animal killed in his territory, for instance, an elephant's tusk or a leg of game. Subjugated tribes pay tribute in kind.

The chief supervises the collective work of the community. Tribesmen who engage themselves to work elsewhere are supposed to send him contributions from their wages. This is often a source of trouble and smacks of exploitation, but it is really the payment of an indemnity for failure to take part in tribal work.

According to native custom, the chief is usually hereditary and is succeeded by his eldest son or brother. When descent is through females, the eldest son of the first sister succeeds. Female chiefs are rare, but not unknown. Such an appointment may occur when there is no male of age to succeed. An intelligent slave who has become the confidential assistant of the chief has been known to step into his shoes. According to existing French law, chiefs are appointed and dismissed by Government.

In some places there are land chiefs who own the soil and form a class apart from the political or administrative chiefs. They may represent a conquered people whose land rights have been respected. The same position occurs amongst the Yoruba of Lagos, which was colonized by a Yoruba chief called the Olofin, whose ten sons wore white caps. The King of Benin conquered the island, and was ousted in turn by the British, but, in spite of these changes of sovereignty, the land remains vested in the Yoruba 'white cap' chiefs, as successors of the sons of the Olofin. It may be observed here that, in tropical Africa, there is no land without an owner. Even if it is bush, it may be required for future cultivation, or for hunting, fishing, or catching snails.

Secret societies exist throughout West Africa. Some serve a useful purpose by providing a machinery for enforcing public order. Others

are criminal. Mistakes have been made in the past by assuming that all were criminal, and Government has had to pay compensation for lodges which it has pulled down. This occurred in connexion with the Ogboni Society, in Nigeria. Labi, or Hyondo, is the name of a secret society of French Equatorial Africa. It is reputed to have a secret language.

Another form of society is known in French Equatorial Africa as Kitemo. It is similar to the Susu Clubs of the Southern Provinces of Nigeria. A group of people pool contributions which go each month to one of the subscribers. The idea may be satisfactory, but experience teaches that the winner of the first draw is the first to drop out.

Domestic slavery was general throughout French Equatorial Africa and the French Cameroons, but it was not universal. Besides the Pygmies, the Fang and the Mandjia had no slaves, and the Baya had few. These tribes live in the forest, where they have no extensive plantations and no need of labour to work them. Slaves were purchased or taken in raids, and debtors, children pawned, and the offspring of slaves became slaves. Domestic slavery was not harsh: the slave was treated as a member of the household. Its social effects still persist, and descendants of slaves still call themselves the slaves of such and such a family.

Cannibalism used to be widespread in Gabon, Moyen Congo, and Ubangi-Shari. It was not due to lack of food, as famine never drove people to it. The true explanation seems to be that it was in its origin religious. The object was either revenge, i.e. to deprive the victim of the rites of burial, or to acquire his powers by consuming his flesh. The cannibal feasts took place in secret and women were excluded. The victim was always an enemy or a stranger. The practice tends to disappear with the spread of education. Skulls are no longer displayed in villages, and human flesh is no longer sold in markets. Cannibalism is becoming disreputable.

Family Life

Central African tribes do not share the many contacts which characterize our national life. Solidarity is mainly confined to the family, and family ties are stronger than tribal ties. Descent in some tribes is through the mother. This has the effect of making the maternal uncle more important than the father.

The husband pays dowry for the wife and this goes to the father or to the mother's family, according to the rule of descent in the



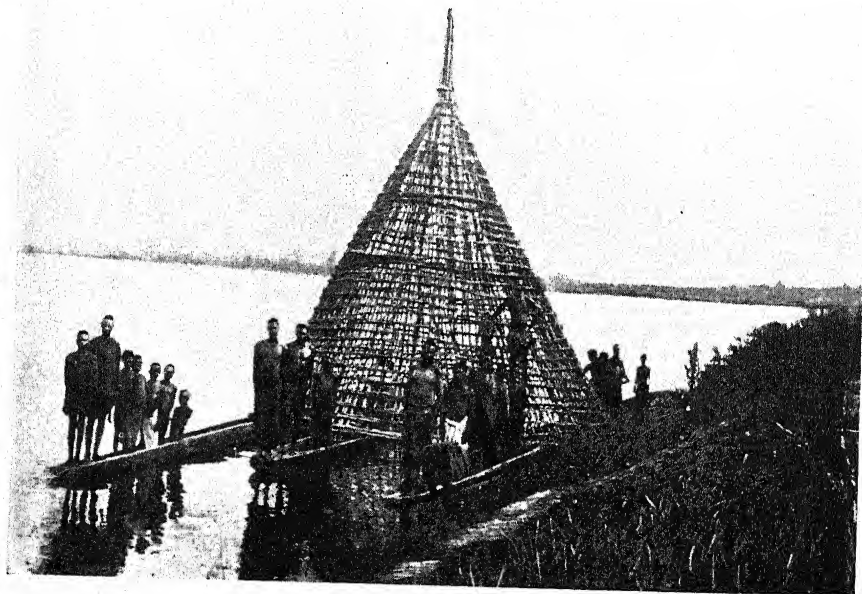
33. *Goulféi. Cameroons*



34. *A Village in Moyen Congo*



35. *House Building in the Cameroons*



36. *Moving House—A 'Sango' Removal on the Ubangi*

tribe. This business of dowry plays a large part in Central African life, and there are more 'dowry cases' in the native courts than any other class of litigation. Bertaut had to deal with a case in which a woman appeared with eleven ex-husbands, all arguing about their financial stake in her. Dowry is paid by instalments. The same writer gives an instance of a dowry which consisted of 653.50 francs, two bags of salt, three garments, a pair of trousers, a pair of shoes, a cooking-pot, a hurricane-lantern, a European dog, a native dog, and five sheep. When credit is given, the arrangement presents all the disadvantages of the hire-purchase system. Besides receiving dowry, the woman's family do not hesitate to demand odd presents for the great bargain which they are giving. Should the wife die shortly after marriage, her parents are bound to replace her or to repay the dowry. The same happens when the husband repudiates her for good cause. If, on the other hand, it is the wife who divorces the husband and she is justified by native custom, the dowry is not repaid.

Adultery is not looked on as a sin but as a form of theft. Polygamy is general and is encouraged by the custom of suckling children for two or three years. The expense of several dowries is, however, a handicap. Men and women eat apart and each sex has its own work. The husband clears the ground, builds the hut, and does outside jobs, while the women do the planting and household work. Some tribes, however, such as the Fang, will supply women carriers. There is a widespread horror of twin births, and some tribes expose the babies, but this is not universal; other tribes consider that twins bring luck.

Dress and Ornament

The dress of bush negroes is scanty compared with that of Moslems, and often consists of a mere loin-cloth. Men of the Massa, Moundan, Sara, and neighbouring tribes wear goatskins. Farther south, the common wear is a loin-cloth of bark cloth or fibre. Women wear a small loin-cloth or a girdle of elephant hair supporting a small apron or tufts of grass. In the Mondjembo and Baloi countries the women wear a skirt of banana fibre, like a ballet-dancer's. Natives in contact with European trade have taken to wearing European cloth, but, on the upper Ogowé, they are conservative and prefer native cloth, for its cheapness and strength.

The favourite headwear amongst the Bantu is a cap of monkey skin, but some are content with a piece of bark cloth. Africans who

have much walking to do often wear sandals. The fashion of wearing armlets of iron wire wound into a cylinder is common amongst women of the Fang, Banziri, and other tribes. The Mondjembo and Boubangui women wear heavy collars of copper or brass (Fig. 56).

It is in the decoration of the person rather than in clothing that Central Africans allow themselves scope. The Fang build up their hair on a framework, stuffed with fibres and decorated, in coster fashion, with buttons (Fig. 56). Banziri women thread beads on their hair (Fig. 56) and girls of the Sango tribe wear pigtails of false hair. Among the Mondjembo and Bouaka, it is the custom to shave a pattern on the head. When a woman cuts off her hair, it is a sign of mourning.

Tattooing and painting the skin are widespread but not universal (Fig. 57). The Mandjia do not tattoo. Face-painting may be a sign of mourning, or to drive off bad luck, or merely ornamental. The significance of the colours varies with the tribes. Among the Mandjia, black is the colour of war, red of festival, and white of mourning. Among the Fanti of Cape Coast (Gold Coast), white is the symbol of success and triumph. The Equatorial negroes also cut their skins so as to make raised patterns.

The women of the tribes which surround the Great Forest have the curious fashion of enlarging their lips by the gradual insertion of disks of wood called Sundu, or Soundou (Fig. 57). Sometimes the disk in the lower lip attains 7 inches in diameter, and that in the upper lip reaches a diameter of $3\frac{1}{2}$ inches. This fashion gives them a grotesque resemblance to the bird called the spoonbill. In order to eat, they have to part the Sundu with one hand and shoot balls of food into the mouth with the other. To drink, they pour the beverage on the surface of the lower Sundu.

The Fang and the Batéké sharpen their teeth and display rows of spiky fangs.

Art

Drawing is represented by a few crude mural paintings at Ndelé and on the lower reaches of the Logone. It may be observed here that negroes and Bantu do not see colours in quite the same way as do Europeans. They pay very little attention to some things which attract us, such as the colours of flowers, and in some of their languages the same word stands for different colours, for instance, yellow and red.

Equatorial African tribes make patterns on their pottery and stools,

usually in the form of squares or triangles. Some Congolese tribes carve figures in wood or ivory, and the Azandé have learned how to turn ivory.

They love their own kinds of music, which consist mainly of repetition. Drums take the foremost place and are also used for signalling messages. They have a kind of xylophone called the *balafon* or *marimba*, made of strips of wood placed over holes in calabashes. They have also string instruments and horns. Bells are popular in the Congo basin, and are tied to the necks of pigs and dogs and to the mooring-posts of canoes, to give warning of thieves.

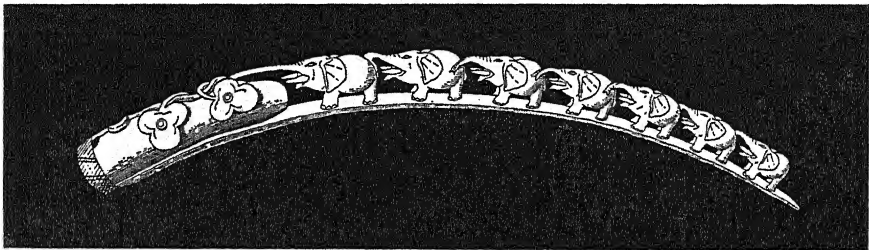


FIG. 59. *Ivory Carving from the Forest Belt*

Dancing is a favourite pastime, and the dancers suit their steps to the beat of the drums, which changes frequently. The dancing consists of a series of jerky movements, but vigorous steps are also improvised. When the entertainment is more elaborate and consists of a mixture of dancing and dramatic representation, it is called a 'play'. The dancers and actors wear ornamental dress and sometimes masks. The play may be given with a special object or on a special occasion, e.g. to promote fertility, as part of funeral ceremonies, at the full moon, &c. For instance, a play may be given by the women of the town to appease the spirit of the deceased mother of the chief. This may begin with singing and dancing round and round in a circle. A 'scene' may follow, in which one woman chases the other women, with a cutlass and torch. This may be succeeded by scenes of mimic warfare, and the play may conclude with a procession in which a woman takes the part of the deceased.

Canoemen add pith to their strokes with songs in which a soloist sings a verse, and the rest join in the chorus. These chants are often impromptu and may be a skit on the white man who has engaged the crew.

Hunting, Shooting, and Fishing

As there is no land without an owner, tribes are jealous of their hunting rights. Traps of all sorts are in use, including nooses for snaring monkeys. On the upper reaches of the Ubangi the inhabitants hunt elephants, while the Fang drive them into a stockade and throw in poisoned bananas.

Many methods of fishing are practised. In the dry season, when the rivers shrink into pools, the villagers kill fish with poison. They also make dams or weirs and fish-traps. For fishing-tackle they use hooks of thorns if they cannot buy those of European manufacture. They also have drift-nets, sweep-nets, and cast-nets, as well as harpoons with bladders attached.

The chief weapons are muzzle-loading guns, spears, knives, and bows and arrows. Their javelins are from 5 to 7 feet long, have a range of from 50 to 60 yards and are effective at 30. Some Bantu (like the Tédá) use throwing-knives, with three or four blades projecting from the handle like leaves from a stalk. Matchets are also carried for use in clearing the bush and make ugly weapons.

Bows are small and the maximum range is about 100 yards. The Fangs were noted for the use of a cross-bow. Arrows are frequently poisoned with *strophanthus*, *euphorbia*, or putrid matter.

Villages and Dwellings. (Fig. 60)

The layout varies with the tribe. The Nzakara and Azandé build compact villages, with twisting streets, while the villages of the Sara, Mandjia, and Banda consist of scattered family groups. Up the Ubangi the banks are lined with long rows of huts, but down the Congo the villages consist of a few irregular habitations. The Fang and other forest tribes build their villages in the form of a street, with a terrace of huts on each side and a blockhouse at each end.

It is quite common for villagers to remove a mile or two to a fresh site. This habit is not confined to migratory tribes, but is common where the soil has become exhausted by cassava and bananas or when the death of the chief or epidemics are attributed to witchcraft. There is sound sense in abandoning a polluted area. Huts can be taken to pieces and re-erected. If a river has to be crossed, two or three canoes serve as pontoons and the whole framework is ferried over.

There are two main types of hut—the round and the rectangular. The latter are found in the Forest and south of the equator. The

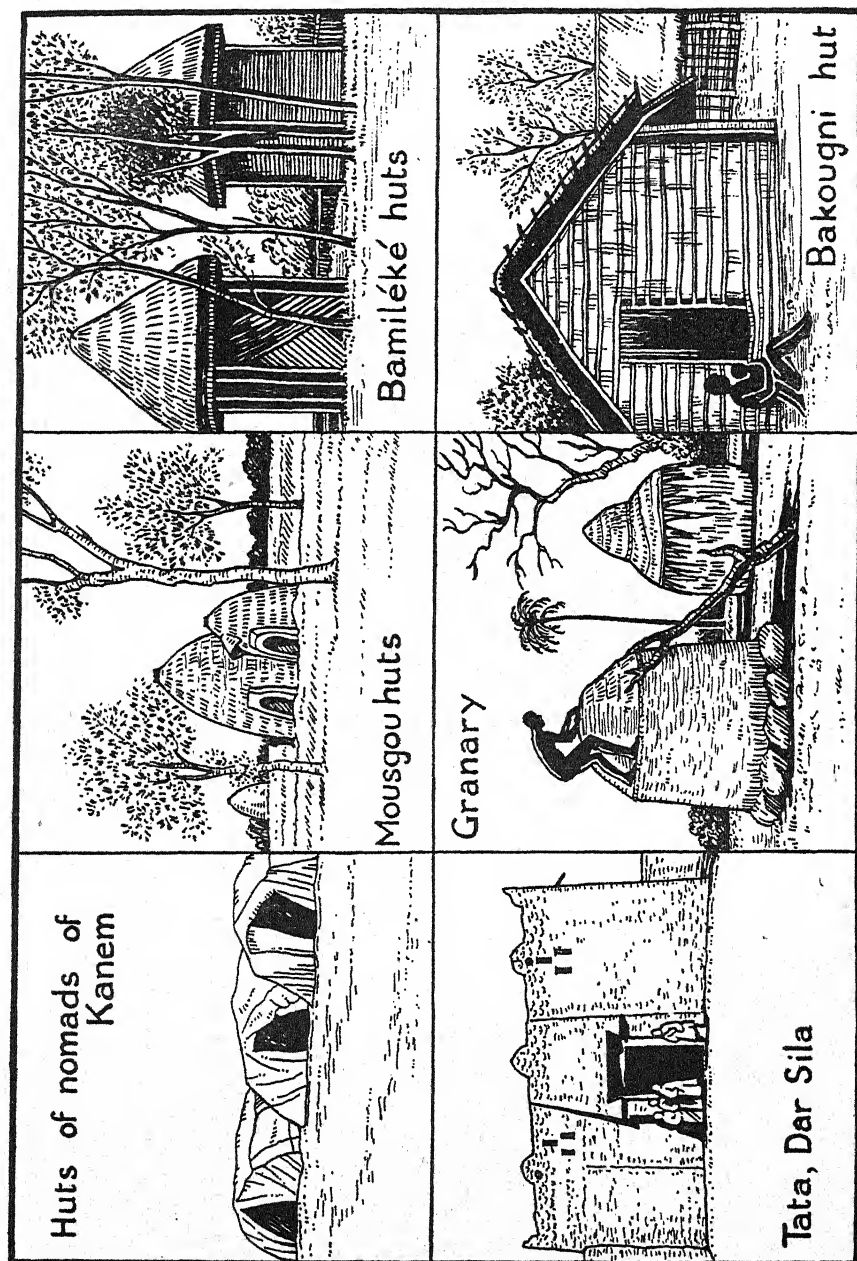


FIG. 60

former is the northern type. Some of the more striking may be noticed.

The Massa build small round huts with walls of 'swish' (or 'mud') and thatched roofs. Their villages are notable for the bottle-shaped granaries, raised on blocks of stone as a protection against rats and white ants. Millet in the ear is stored in them. When it is wanted, the owner takes off the cover and drops inside through the bottle-neck.

The mud huts of the Mosgou are very striking, being shaped like high-explosive shells. The Sara huts have already been described (p. 201). The Mandjia scoop out the site, using the earth for building mud walls.

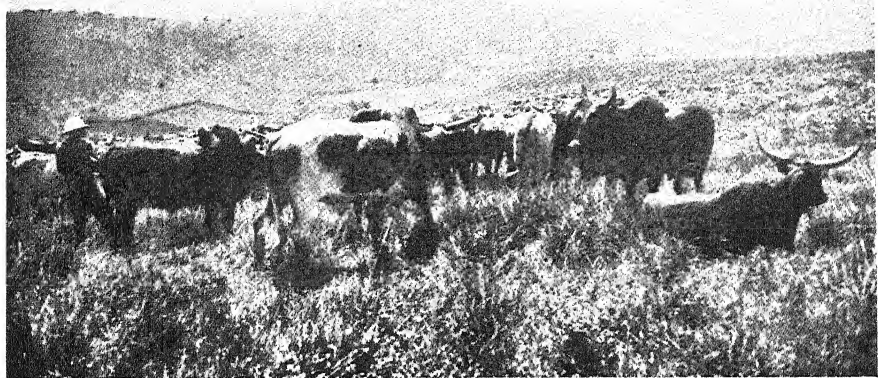
Rectangular huts are constructed of bark or leaves. The bark huts are found inside the Forest. Between the river Sanga and the coast, excellent roofs are made of palm mats which last for two or three years, but it must be remembered that they are not completely sunproof. When the hut is used by a European some sort of ceiling is required, so as to leave an air-space.

There is usually, in a village, a larger hut or club house. In the Fang country these are loopholed.

Markets

The curse of commerce in French Equatorial Africa and Cameroons has been trade monopolies. From the days of the European slave-trade, every inland tribe, in its turn, has claimed the sole right to act as middleman and so prevented trade from flowing through its country. The Batéké held the north bank of the Congo and intercepted all trade to and from the coast. The Douala, in their treaty with the Germans, said plainly that they did not wish the white men to meet their bush customers. The same thing happened everywhere. It was as if a series of barriers had been erected behind the coast. Goods were handled and rehandled and prices went up and up.

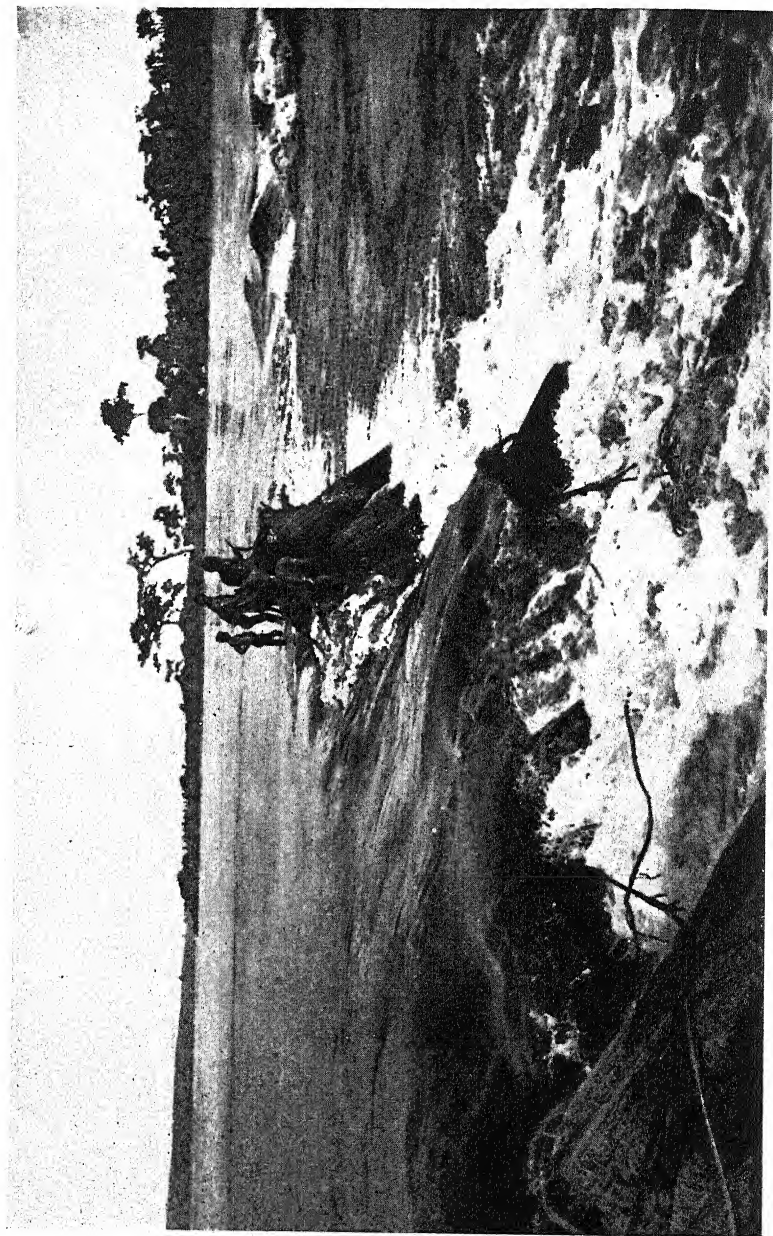
The abolition of the slave trade and French occupation have thrown the country open, and every large town now has its market. In the rural parts, markets are held on fixed days. The Bakongo, the Batéké, and the Bakougni of the lower reaches of the Congo go to market every fourth day. This is the length of their week: the names of the days are (among the Bakongo and the Batéké) *Mpika*, *Nkoye*, *Boukondzo*, and *Boudouka*, and the markets take their names from the days on which they fall. The Bakougni have a similar calendar. It



37. *Cattle on the Cameroon Uplands*



38. *A 'Cow' (or pastoral) Fulani from Bororo*



39. *Fishermen on the Ubangi near Mobaye*

is well for travellers to know the time-table, for, if they come on the wrong day, village pot-luck may be meagre.

Up the Ubangi and on all the main rivers, the fishermen trade fish, palm oil, and native hoes (*guindja*) for cassava, chickens, and goats, in markets near the river-bank. Some of these river tribes load their canoes with dried fish and casks of oil, paddle to other villages, and set up waterside markets.

The *guindja* is particularly interesting because it is also one of the forms of native currency now becoming obsolete. Two or three decades ago a Nigerian traveller, up the Cross river, had to include in his luggage a box of brass and copper rods and manillas, the manilla resembling a small horse-shoe and originally made out of ship's bolts. Without this purse he could buy nothing. In French Equatorial Africa similar native currencies existed in the form of blades of hoes, bracelets, arrow-heads, and so forth, of which the *guindja* and the *bikki* of the Fang are relics. (See page 205).

North of the M'Bomou lies the Land of Merchants (*Dar Toudjar*), so called because the Ouadai traders have been used to come down from the north to buy ivory (and slaves, in the bad old days) in return for salt, guns, and powder.

IMPACT

Impact of European Civilization on the Native Population

It would be easy to write about the effects of civilization, such as law and order, hospitals, schools, roads, introduction of cassava (an old story) and cotton piece goods, rise of individual ownership of land, weakening of authority of chiefs, &c. The last is strongly marked in French Equatorial Africa because of the French preference for direct rule. But, what of the effect of civilization on the individual? How is the native of French Equatorial Africa affected by modern European civilization? The effects are not yet widespread, but will inevitably develop. They have had little effect on the Moslem population. The bush tribes are less affected than the coastal tribes. The older people and the women have been influenced very little. Only some of the boys and young men are reacting to it. The explosive elements are European education and Christianity. The African is a practical, sane, and well-balanced individual. He accepts the white man's inventions without surprise. He has, on the coast, been accustomed to trade with him for over four hundred years. But native village life, based on ancestral cults and nature worship or propitiation of natural

forces, cannot stand against the inroads of European education. This applies to the pupils who assimilate one European language sufficiently to acquire ideas from books or newspapers or conversation. It also applies to labourers recruited for work in the towns, where new ideas and new movements are in the air. These new ideas are bound to upset village and tribal life and, if the old standards are not replaced by new, the last state is likely to be worse than the first. This means a remaking of the social life of the people. The process has started. There is no question of the natives being cramped by the French. French Equatorial Africa will never be a white man's country. It must evolve in its own way, under European protection. If the Yoruba and the Ibo, in Nigeria, can adapt themselves so well to change, there should be hope for the Fang, the Batéké, the Sara. It all depends upon whether they preserve their self-respect. In the meantime, the decay of faith in their national religions is likely to dry up the sources of native art and the young are likely to show a reluctance to adopt crafts which are dying out.

CHAPTER VIII

HISTORY

EARLY HISTORY

Pre-Christian Times

THERE are several stories of contacts between the civilized world and the west coast of tropical Africa in pre-Christian times. Some are possible; none are capable of proof: but no historical sketch of an African country on the Atlantic coast can afford to ignore them. Somewhere about 600 B.C., Necho, the Pharaoh of the time, is said to have sent Phoenicians (Canaanites) round Africa, starting from the Red Sea and returning by the Mediterranean. Herodotus, who tells the story, is, for once, sceptical, but apparently only due to ignorance of astronomy. He doubts the veracity of sailors who reported that the sun lay upon their right hand throughout the voyage. Yet, broadly speaking, such would have been the case; the Benguela and Agulhas currents would have been very helpful in this clockwise direction, and these early sailors braved worse perils on the stormy voyage to Cornwall.

The next attempt at circumnavigation was enforced, as a punishment, upon one Sataspes, a Persian. He sailed from Egypt somewhere about 470 B.C., rounded Cape Spartel, and eventually came to a land where he found dwarfs clothed in palm-leaves. A little farther on his ship stopped and would not go any farther. He may in fact have reached the Benguela current. Returning to Persia, baffled in his voyage of expiation, he was impaled by Xerxes. Sataspes may well have seen the coast of French Equatorial Africa.

It has been believed, without much justification, that Hanno the Carthaginian reached the Bight of Benin on his famous colonizing voyage of 445 B.C. Hanno started with sixty pentekontors (fifty-oared boats). He has left us much evidence by which to trace his journey, and it is almost certain that he got no farther than the Kittam Peninsula in Sierra Leone. It is quite probable, however, that the blood of his colonists still lingers on at Rabat, at Safi, in the Rio de Oro, and the Gambia.

There is a further story of a voyage by a Greek, Eudoxus by name, in or about the year 120 B.C. He is reputed to have sailed down the west coast and reached a place at which the natives spoke the same language as he had previously found on the east coast. This is but a slender clue. Berber has been spoken east of the Nile as well as upon the western

seaboard of Africa, and it is difficult to imagine any but a real master of tongues recognizing, in the Bantu of the Congo, the language spoken by (say) the Shangan. It is more than doubtful if Eudoxus got as far south as Hanno. Finally, it is by no means improbable that the Romans reached the neighbourhood of Lake Chad from Egypt.

Portuguese, Fifteenth Century

Whatever truth there may be in these early stories, it was not till the fifteenth century that Europeans made touch with Equatorial Africa, and it was the Portuguese, claiming dominion under a Bull of doubtful authenticity of Pope Martin V, who did so. They first crossed the equator in 1470, and, shortly after, Lopez Gonsálvez and Fernando Vaz reached Cape Lopez and Fernan Vaz. In 1484 Diego Cam discovered the mouth of the Congo which he named the Zaire, making a treaty with the king, and inscribing the royal arms of Portugal on the cliffs. Other voyages followed, and from the Portuguese language came the name Gabon, from the real or fancied resemblance of the estuary to the shape of a hood, or gabardine (Gabão). From 1490 onwards we find Portuguese missions actively at work. The Cameroon river was discovered by the Portuguese before 1484, and named by them the Rio dos Camarões from the abundance of prawns (camarões) found therein. They established stations near Douala in the seventeenth century, but by 1786 all these had been abandoned, and until about 1820 nothing more is heard of this district. At the time of these early discoveries there were three principal States of Bantu origin. North of the Congo was the Kingdom of Loango or Brama, stretching from the Ogowé to the Congo mouth; Congo or Makongo or Mani Congo, reaching south to the Benguela; and Anzila, inland on the Niari.

Other European Contacts

The Portuguese were followed by the Dutch, British, and French, principally the last named, whose trading voyages start about the middle of the sixteenth century. In the seventeenth century the French monarchy granted trade monopolies to large companies, as indeed did the English, and one French company obtained exclusive rights between Sierra Leone and Cape Lopez; but in 1769 this coast was thrown open to all French traders.

Early trade was a curious affair of dumb show, referred to by the English writers as the 'Silent Trade', and by French historians as 'La Troque'. Europeans would place their wares on the ground and

retire, the natives would then place beside them as much of their produce as they thought a fair equivalent. Should the Europeans be satisfied they would take this away, leaving their own property for the natives to remove. Should they not be satisfied they would retire again, when more would be brought by the natives. And so the game went on till both were satisfied, or one or other, feeling that agreement was impossible, would take back his own wares and depart. Apart from slaves, the natives offered gold-dust, ivory, palm-products, and ground-nuts, receiving in exchange powder and weapons, tobacco, spirits, beads, silk, and woven goods.

Slave Trade

But the principal article of export from 1517 onwards all along the west coast was the slave, and all European nations took their full part in this trade. Europeans were not, themselves, guilty of slave-raiding. The slaves were chiefly taken in the raids and wars of the interior, passed on to the coast tribes, and embarked at once on the arrival of the ships. The slave trade was abolished on paper by England in 1807, by the French in 1819, and by the Portuguese in 1836. Sir Thomas Buxton declared that at least 150,000 slaves were being exported annually as late as 1840, in spite of the efforts of British, French, and Americans who granted mutual rights of visit and search. The principal ports of embarkation were Calabar and Bonny, whilst, in what is now French territory, Sangatanga, Fernan Vaz, Sette Cama, Mayoumba, Banda, Loango, and Pointe Noire had their full share of this as well as of more reputable trade.

During the middle years of the nineteenth century the export of slaves from the west coast was finally suppressed, but raiding continued in the interior right up to final and effective French and British occupation. There was a vast market at Kukuwai (Koukaoua), the ancient capital of Bornou, and, by raiding and wars, no less than by disease, the population of these areas was terribly thinned.

European Exploration

Before proceeding to the era of occupation, it may be well to deal briefly with a few of the more important journeys of exploration in the nineteenth century, though many of the journeys aimed more at political expansion than at geographical discovery, whether so much was admitted or not. (See Fig. 61.)

Denham, 1822. The earliest explorer we need notice is Dixon Denham, who accompanied Oudney and Clapperton in 1822-3 across

the Sahara from the north, reaching Bornou. Here he left his companions, to accompany a slave-raid into the Mandara country to the south. He then explored the country south-east of Lake Chad, and the lower courses of the rivers Logone and Shari, returning to England in 1824.

Barth, 1852. Heinrich Barth in 1852-5 (to quote from the *Encyclopaedia Britannica*) 'traversed the country from Lake Chad and Baguirmi on the east to Timbuktu on the west and Cameroon on the south, making prolonged sojourns in the ancient sultanates or emirates of Bornou, Kano, Nupé, Sokoto and Gandou, studying minutely the topography, history, civilization and resources of the countries visited.' He published his experiences simultaneously in German and English.

Nachtigal, 1869. Gustav Nachtigal was sent on a mission to Bornou by Prussia in 1869. He visited Tibesti and Bornou, and traversing Baguirmi, Ouadai, and Kordofan, arrived at Khartoum in 1874. His later activities in the Cameroons will be dealt with subsequently.

Flegel, 1879. Edward Robert Flegel in 1879 went up the Benue 125 miles higher than it had previously been ascended. In 1882, under the protection of a safe conduct from the Emir of Sokoto, he journeyed through the Adamaoua country and discovered the source of the Benue, making a further journey in 1884 with the object, in which he failed, of anticipating British control of Nigeria.

Missionaries.

The first French missionaries were sent by the Paris Congregation of the Saint-Esprit in the latter half of the eighteenth century, and in 1766 Bellegarde was appointed Apostolic Prefect of Loango. The first French nuns, sisters of the Immaculate Conception of Castres, were established at Libreville in 1848. By 1930 there were seven prefectures or *vicariats Apostoliques* in Equatorial Africa and the Cameroons south of latitude 10° N. Farther north the Church in theory rules from Khartoum, but there are no missions. There were at the same date forty-six Protestant missions of various denominations.

FRENCH EQUATORIAL AFRICA

French Occupation and Administration to 1900

Early Penetration 1839-1885

To return to French exploration, Commandant Bouet-Willaumez, who had already been active in measures against the slave trade, laid

the foundations of French Equatorial Africa on 9 February 1839 by signing a treaty with King Denis of Lower Gabon, by which the latter yielded two leagues of territory on the left bank of the river of that name, and accepted the protection of France. In 1841 further treaties were made with the same monarch, and in the succeeding years treaties were made with other chiefs. In 1843 the site of Libreville was garrisoned by a company of infantry, and Libreville itself was planted with a colony of slaves freed by the French navy in 1849, as had been Freetown in Sierra Leone by the British many years earlier.

After this, similar treaties were made with chiefs all along the coast, several of which definitely provided for the abandonment of the slave trade. Small military garrisons were established, the first French custom-house was opened at the mouth of the Mondah, a little north of Libreville, and by 1862, with the cession of Cape Lopez, 200 miles of the coast of what is now the Gabon and Moyen Congo, with an estimated area of 8,000 square miles and a population of 186,000, was under French authority. But only the coast, and perhaps even there 'authority' is too strong a word. Anyhow, the claim of France to the coast and the immediate hinterland was now staked out, and what remained was to consolidate and extend it. In this lies the difference between such expeditions as those we have already mentioned and subsequent explorations.

The first attempts (1847-1855) to penetrate inland were via the Como, a small stream flowing into the estuary of the Gabon, which indeed was found to be rather an arm of the sea than a river running from the interior. Then the Mouni was tried and abandoned in 1856 by Paul du Chaillu, whose conclusions were confirmed by the more prolonged researches of the Spaniard Iradier in 1875-7.

It was the Ogowé which provided the key to the interior, and it was Paul du Chaillu who first discovered that fact in his journeys of 1857-9, though it was not until de Brazza's journey of 1875 that the door was unlocked. Meanwhile others, usually under official auspices, and frequently naval officers, were exploring the lower reaches of the Ogowé and its basin, and making treaties with the chiefs. We may mention Serval and Griffon de Bellay in 1862, D'Albigot and Touchardre in 1864, and the Englishman Walker, who in 1866 reached the junction of the Ogowé and Okano nearly 200 miles from the sea. Lieutenant Aymès in 1867 and 1878 made treaties with the Irengas near the junction of the N'Gounié and the Ogowé at Pointe Fétique some miles above the modern Lambaréné.

The Franco-German war put a temporary stop to exploration, and

the French were within an ace of abandoning the whole region. The only French expedition up to 1875 was the entirely private venture of Marché and De Compiègne.

French official penetration was resumed in 1875, when Pierre Savorgnan de Brazza, a naval lieutenant of Italian origin, was granted leave and facilities to carry out a proposal he had made to the Ministry of Marine. Starting from Lambaréné, then the highest point of European settlement on the river, he first explored the Upper Ogowé, though not without opposition from the inhabitants. After returning from France in 1877, he crossed the watershed between the Ogowé and the Alima, which he descended, but, when a bare five marches from the Congo, was forced to turn back by the hostile attitude of the natives. After discovering the Likouala he returned to the coast, to learn that Stanley had reached the Congo from the other side of Africa and had descended the river to its mouth.

On his return from France in 1879, after founding the station of Franceville, de Brazza reached Stanley Pool, where he made a treaty with King Makoko of the Babundu. The treaty secured part of the north shore for France, but de Brazza, finding quiet anchorage at Kintamo island near the south shore, hoisted the French flag there, in October 1880. Later his post was transferred to the present site of Brazzaville. After further exploration on the Niari, where he made treaties and established posts, he returned to France in 1882.

On his first journey Stanley had made no territorial claims, but on his return to Europe he was retained for that purpose by Leopold II on behalf of the International Association. Reaching Stanley Pool on 27 July 1881 to find that he had been forestalled, he founded, on the southern bank of the Congo, and in the name of the International Association, a station which became Leopoldville, the capital of the Congo Free State and later of the Belgian Congo.

To quote Mr. Roberts's *French Colonial History*, de Brazza's work up to this date had given France 'a protectorate over a large territory embracing all of the north bank of the Congo between Brazzaville and the Ubangi. He had thus transformed a hemmed-in coastal strip into a Colony four times the size of France.' The law of 30 November 1882 was passed ratifying his treaties, and setting up the Government of the French Congo. He went out in 1883 as *Commissaire de la République Française dans l'Ouest Africain*, with money voted by Parliament, thirty European civil officials, and thirty French officers, to form the nucleus of the staff of the colony. The next two years were devoted to consolidation and organization.

General Act of Berlin, 1885

The Congo Free State was first recognized internationally in 1884: an event of profound significance for French Equatorial Africa, and one which has shaped its boundaries and affected its policy ever since. By the General Act of the Berlin Conference in 1885 the Congo was made an international highway, and free trade was guaranteed in its basin. None but minor duties, purely for revenue purposes, might be imposed, and these were to fall equally on all nations. This ruling led to a separate tariff for such parts of Equatorial Africa as fell within the conventional Congo basin, to the shaping of internal administrative boundaries to coincide with this basin, and to difficulties which lasted till after the last war. It was further provided that occupation of any fresh territory in Central Africa by any signatory must be notified to all others, and, to receive their acquiescence, must be effective.

French System, 1880-91

Originally the French establishments in the Gabon had been administered by the naval commander-in-chief. In 1881 the administration was entrusted to a senior naval officer with the title of *Commandant supérieur des établissements françaises du Golfe de Guinée*. With de Brazza's nomination as Commissioner in 1883, these settlements were divided into two: (1) Gabon administered by its own commandant and having Cotonou and Porto Novo as dependencies, and (2) Grand Bassam and Assinie on the Ivory Coast. The next step was the decree of 27 April 1886 which gave Gabon a Lieutenant-Governor under the general authority of de Brazza as Commissioner. Then followed the decree of 29 June of the same year, which appointed de Brazza *Commissaire général du gouvernement*, and gave him authority over two colonies, Gabon and Congo Français, each with their separate organization. The last of the steps to be noted at present was the decree of 11 December 1888 uniting Gabon with the Congo, and a decree of 30 April 1891 giving the whole the title Congo Français. Central and secretarial departments were at this time at Libreville, off which place there was also a hospital ship where sick officials could be cured of 'congolitis and misanthropy'.

Penetration, 1885-1900

De Brazza was a man dedicated to his task: that of opening up the hinterland, and of founding a mighty French Empire from the

Bight of Benin to the Nile and from the Congo to the Mediterranean. He enjoined this task upon his subordinates and found them able colleagues. De Lastours and Jacques de Brazza gave their lives in opening the country between the Ogowé and the Likouala, whilst Crampel, whose tragic end is told hereafter, and Alfred Fournneau explored the Ivindo. In 1889 de Brazza organized a staff of *chefs de station, chefs de poste, chefs d'exploration*, and agricultural experts for the interior. The products of the Congo shown at the Exposition Universelle in Paris in 1889 gave the French people a glow of pride, and may have sown the seeds of the questionable policy of concessions of the next decade. Trade, which was mainly centred at Libreville and Loango, was then 3 million francs of imports and $4\frac{1}{2}$ million of exports. France, however, took a very secondary place with 650,000 francs of imports and 250,000 of exports. This was partly due to the lack of direct communication, remedied in 1887 by a subsidized service from Havre and Marseilles to French ports in West Africa with Loango as its terminal point. England and Germany took the lion's share of the rubber, ivory, and timber, which formed the principal exports of the infant colony.

After the War of 1870 the Metropolitan grant-in-aid had been reduced from 100,000 francs to 52,000. But local revenue rose from 50,000 francs in 1872 to a million and a half in 1892, coming principally from customs and licences. In the same year 650,000 francs were set aside for administration in the interior.

The eighties were taken up with the exploration and consolidation of Congo Français, and were on the whole years of peaceful penetration. The next twenty years were to see exploration and annexation north through Ubangi-Shari to Chad and beyond, and east towards Darfur, not without much toil and bloodshed. The expeditions were supported and largely financed by the *Comité de l'Afrique Française*, an influential society formed in Paris in 1890, among whose objects were the furtherance, by all means in its power, of French influence and commerce in West, Central, and North Africa.

Whilst the road north to Chad and beyond lay open to the French, expansion to the west was barred by conventions with Great Britain and Germany, and to the south by the Congo Free State. The latter indeed attempted to expand northward, but was finally confined south of the Ubangi by a treaty of 1894. To the east Marchand's gallant journey, which brought Great Britain and France to the verge of war, led to the treaty of 21 March 1899, which laid down the boundary between French possessions and the Anglo-

Egyptian Sudan. North to the boundaries of Libya and thence north-west across the Sahara, was the line of the expeditions of the next twenty years which were to give France her ambition of possessions stretching from the Mediterranean to the Congo.

In September 1890 Paul Crampel started from Bangui, then the farthest French outpost, with four Europeans and an escort of twenty-nine Senegalese, and struck north from a point on the Ubangi between the Kouma and the Kouango. Entering Moslem regions, he was well received by Mahomed es Senussi of Dar el Kouti. In April 1891, however, he was treacherously attacked and killed at Châ, now Fort Crampel, the first French victim of Rabah Zobeir, under whose orders the attack was made.

This 'black Attila', half-negro and half-Arab, was an ex-slave of Zobeir Pasha who commanded the Egyptian forces in the Sudan. In 1879, when in command of Zobeir's forces in the Bahr el Ghazal, he mutinied and fled westward with 700 slave soldiers. Overthrowing Kreich and Dar Banda, he established himself in Baguirmi, which he used as his headquarters for twenty years of slave-raiding. In 1893 he overthrew the Sultan of Bornou, but retired in 1897 during an advance upon Kano on learning of the British victory and protectorate over the Fulani empire. The rest of his story will be told later.

In 1890-1 Fourneau, exploring the Sanga and Kadei, was attacked by the Bouhans on the Sanga at Zaourou Koussio (Kuisso) about latitude 5° N., and, after heavy losses, was forced to retreat to Ouesso. In 1892 de Brazza himself proceeded up the Sanga by steamer to Bania, where he established a station, while Mizon crossed the Adamaoua country from Yola, being well received at Ngaoundéré, to meet de Brazza on 7 April 1892 on the Sanga. Negotiations ensued with the Ngaoundéré and their superior, the Emir of Yola. Both were disposed to accept French protection, but the proposal was met with the protests of both Britain and Germany. Germany, indeed, had already put forward claims in the Cameroons. These had been discussed in 1885 and a treaty was signed in that year, but the Franco-German treaty of 15 March 1894 settled the final boundary in outline up to Lake Chad.

By this treaty Ngaoundéré, with the great bulk of the Adamaoua country, was definitely resigned to the Germans. To all intents and purposes the boundary shown on recent maps between French Equatorial Africa and the French Cameroons is that of 1894, the intermediate modification of 1911 in Germany's favour having been annulled after the 1914-18 war.

Clozel, who before the treaty had received instructions to penetrate into the Adamaoua country, now opened up the Logone and the Bahr Sara basins, while Fourneau in 1898 prospected for a railway from the Sanga to Libreville. This project was never carried out.

Meanwhile Casimir Maistre in 1892, after a voyage up the Ubangi in two light gunboats, had disembarked at Ouadda, and marched without opposition north-westward. He explored much new country, making treaties with the chiefs round the rivers Bahr Sara and Logone. After visiting Lai, he reached the Benue at Yola, and descended to Ibi, where he arrived on 3 March 1893.

We can now consider exploration and penetration eastwards, north of the Ubangi. Throughout this stage the primary French objective was an outlet to the Upper Nile.

In 1889 a port had been established at Bangui on the right bank of the river among a hostile and cannibal population opposite the Congo Free State port of Zongo. In April 1890 de Brazza, picking his man with his usual unerring judgement, directed Victor Liotard 'to occupy progressively the territories to the north and east, notably the Upper Ubangi, and to turn them into a French region, with a door open to the Nile'. Liotard, a naval doctor, who was given the title of *directeur délégué du Commissaire général dans le Haut Oubangui*, did his work in two stages, from 1890 to 1894 and from 1894 to 1898. Though his name will not appear often in the narrative, his, under de Brazza's, is the directing mind.

The occupation was not accomplished without bloodshed. In 1890 Musy, chef de poste at Bangui, was killed and eaten: in May 1892 de Poumayrac at Abira, at the confluence of the M'Bomou and Ouellé, was killed and eaten with his escort of over thirty. To the hostility of the natives were added frontier difficulties with the Belgians, who crossed the M'Bomou into Dar Rounga and Dar el Kouti, and proceeded nearly up to 10° north. The subsequent Franco-Belgian Agreement of 14 August 1894 laid down the M'Bomou up to its source as the mutual frontier. Till this settlement matters between the French and Belgians were delicate, and comparatively little could be done; two expeditions, those of Monteil and Decazes, were held up in 1893 and 1894 to avoid the possibilities of a clash. It is claimed by the French that but for the delay caused by the dispute with the Belgians, the Nile would have been reached in 1896, when no complications with Great Britain could have arisen. Be that as it may, Rafai was occupied at the end of 1894, Zemio in 1895, and Liotard reached Deim Zoubair, the old capital of the Sudanese

province of Bahr el Ghazal, on 7 April 1897, and established a post there. In this period several other stations were established by the French well within what is now the Anglo-Egyptian Sudan, all to be evacuated later as the result of the Anglo-French treaty of March, 1899.

Emil Gentil reached Chad by a new route. Ascending the Ubangi and Tomi to Krébedjé (now Fort Sibut) in his boat the *Léon Blot*, he made a portage across to a tributary of the Gribingui. Descending this stream into the Shari, he arrived on 17 September 1897 at Bouso (or Fort Brétonnet) in the country of the Baguirmi which was being menaced by Rabah. With delight the Sultan Gaourang accepted French protection at his capital Massénia. Continuing his voyage down the Shari, Gentil emerged on the lake on 1 November 1897. He left a resident with the Baguirmi. Meanwhile the Sultan of Kouti had explained that those of his people who had taken part in the massacre of Crampel were under duress from Rabah, and made a treaty with the French in 1898.

As soon as Gentil left, Rabah again invaded and ravaged the Baguirmi, who called upon France for aid. Unfortunately, Rabah had in his hands a French commercial explorer, Béhagle. To aid Gaourang and to rescue Béhagle, Brétonnet (commandant of the Shari district) left Fort Crampel on 1 May 1899. Rabah, however, advanced against him with 12,000 men, and at Niellim Togboa, on 17 July, Brétonnet and 40 out of his total force of 43 were killed. Béhagle was killed by Rabah's orders shortly afterwards.

On receiving the news of this disaster France took immediate steps to repair it, and Emil Gentil, who had succeeded de Brazza as Commissioner the previous year, arrived at Fort Archambault on 8 November 1899. Meanwhile, two other French missions were approaching Chad. One, under Fernand Foureau and Chef de bataillon Amedée Lamy, had crossed the Sahara from Algeria, and, passing through Zinder to the west of Lake Chad, reached it on 2 November. The other, under Captain Joalland's leadership, came from the Niger, and also passing through Zinder joined the northern column at Goulféi, thus giving Lamy, the senior military officer, 450 good soldiers.

At Kousseri (Fort Foureau) the two united missions met that from Shari on 21 April 1900—a proud day in the history of French penetration of Africa. The next day, united under Lamy's orders, they attacked and routed Rabah's army, killing the 'black Attila' himself, but not without heavy losses, including the death of Lamy. Rabah's

son, Fader Allah, was pursued into British territory by Captain Dangerville and killed at Gubja on 22 August. With this episode the last major menace to the pacification of Chad was removed.

Colonial Government, 1900-34

The decrees of 5 and 8 September 1900 created a military territory of the Country and Protectorate of the Chad. As minor modifications of the southern government had also taken place, it is well here to outline the form of government which lasted from 1903 to 1934.

The decree of 29 December 1903, modified by several others subsequent to it, placed the possessions of the French Congo and its dependencies under the supreme authority of a *Commissaire-général* residing at Brazzaville. These possessions were:

1. The Colony of the Gabon, i.e. the maritime region between Spanish Guinea, the Cameroons, and the boundary of the basin of the Congo. Gabon was placed under a Lieutenant-Governor with headquarters at Libreville.
2. The Colony of the Moyen Congo, stretching along the banks of the Congo and Ubangi as far north as Bangui, its north-westerly frontier with the Cameroons being near Koundé. This was under the direct control of the *Commissaire-général*.
3. The territory of Ubangi-Shari with headquarters at Bangui, administered at first by a *délégué permanent* with not very clearly defined powers, and later, when its boundaries were extended farther north and it became the Colony of Ubangi-Shari-Chad in 1906, under a Lieutenant-Governor.
4. The military territory of Chad, which was at first under the administration of the officer commanding the troops. Later, 'military' disappeared from its title and it became subordinate to Ubangi-Shari, under a *commandant de région* at Fort Lamy.

Each territory, till 1934, had its own budget and a good deal of local autonomy, and though in 1910 the *Commissaire-général* of the French Congo became the Governor-General of French Equatorial Africa, the structure above described is in the main that of to-day. Its working has been described in some detail in another chapter, and it is not proposed to go further into it here.

The frontiers of Spanish Guinea and Portuguese Cabinda with the French Congo were settled; the first by an Agreement of 27 January 1900 which also gave France the right of pre-emption in the event of the Spaniards wishing to abandon their colony; the second by an Agreement of 25 January 1901.

Penetration, 1900-1911

The first decade of the twentieth century saw the complete penetration and pacification of the Upper Ubangi, mostly without trouble, but to the north more fighting was to take place before Chad could cease to be a military territory.

In the north the Senussi dominated the situation. This sect was founded at Mecca in 1835 by Mohammed Ben Senussi, commonly known as the Sheikh es Senussi. At Mecca he gained his most powerful supporter, Mohammed Sherif, who became Sultan of Ouadai in 1838. In 1843 Sheikh es Senussi settled in Cyrenaica, moving thence in 1855 to Jaghbub (Jarabub), north-west of Siwa, where he died in 1859. With the acquiescence of the elder son, Mohammed Sherif (named after his father's friend), the succession passed to the second son, Senussi el Mahdi. Though so named by his father, there is nothing in his career to show that he claimed to be *the* Mahdi. Indeed, he would have nothing to do with the movement of Mohammed Ahmed, the Mahdi of the Anglo-Egyptian Sudan, and enjoined the same attitude on his vassals.

The Senussi doctrine, though widespread in northern Africa at the end of the last century, was but one sect among many. Only in the eastern Sudan did it become of political importance. Here Senussi el Mahdi became a great territorial overlord, ruling from Gouro in the north of Borkou over territory which included Ouadai, Ennedi, and Kanem, all of which embraced his doctrine. He was defeated by the French at Bir Alalioukiri on 20 January 1902 and died shortly after. Kanem submitted, but el Mahdi's successor, Ahmed es Sherif, continued the struggle for some years, and it was not till the second battle of Ain Galaka in November 1913, followed by the occupation of Faya in the following month by Colonel Largeau, that the Senussi ceased to be a serious menace.

The final pacification was that of Ouadai, where Ahmed Ghazili had been Sultan since the murder of his predecessor, Ibrahim, in 1900. Acyl, a pretender to the Sultanate, sought French protection in order to escape the blinding with which he was threatened. In 1901 Ahmed was dethroned and succeeded by Daud Morrah, with whom the French endeavoured to arrange a *modus vivendi*. However, in 1904 the Ouadais, egged on by the Senussi, attacked French posts, and in 1908 proclaimed a Holy War. Captain Fiegenschuh took Abéché, the capital, in June 1909; Daud Morrah was dethroned and Acyl proclaimed Sultan. But the war was by no means over. In

January 1910 Fiegenschuh was defeated and killed, and other reverses followed. Acyl was unsatisfactory and took to oppression and pillage again at the instigation of the Senussi. Though he signed a convention with France, he failed to keep it, and in June 1912 was arrested, the Sultanate was abolished, and Ouadai came under direct rule.

The Sultan of El Kouti, who had been responsible, though undoubtedly under Rabah's orders, for the murder of Crampel in 1891, had concluded a treaty in 1903 by which he promised to receive a French resident and to pay tribute of rubber, ivory, and other things. He failed to keep his word, preferring his old habits of raiding and pillaging. An expedition was sent against him in February 1911, when he was killed, and the last sultanate in French Equatorial Africa was subdued.

Industrial History

Hitherto the history of the exploration and pacification of French Equatorial Africa has been the principal theme. This was completed before the first Great War. It is proposed now to outline industrial development, which is largely the tragic story of the concessions, up to the present moment, omitting as far as possible all reference to the first Great War. This will be considered in conjunction with the Cameroons, whose destinies it revolutionized.

The principal natural resources of the colony are timber and palm products and, in the early days, rubber, in addition to a good deal of undeveloped mineral wealth. Moreover, in Gabon and Moyen Congo, at least, soil and climate are suitable for tropical products such as cocoa and coffee. The population is sparse (in Gabon under 4, in Moyen Congo under 5 to the square mile) and not of a very high type. With the scramble for Africa in full swing in the eighties, and in view of the stipulation of the Berlin Conference that occupation, to be recognized, must be effective, quick development was essential. Public money was not available for the purpose, so the method chosen was to farm out concessions to large syndicates, not always working with French capital.

The legal aspect of the concessions movement and the terms upon which they were granted will be dealt with under 'land tenure', in a subsequent chapter. Here it is necessary to treat of it as an historical fact and to note its effect on the economic development of the country. The first concession was granted in Paris in 1890,

and by the end of the century some 327,000 square miles were in the hands of large companies.

The terms of the concessions gave very wide power, and, in their anxiety to obtain results, the exploiters certainly ill-treated the natives. Government staff was inadequate, and it must be admitted was prepared to overlook many abuses in its natural anxiety for development. There resulted scandals in no way surpassed on the other bank of the Congo. Public opinion was thoroughly aroused, and the veteran de Brazza was dispatched on a mission of inquiry, his last sad service to the adopted country he had so long and gallantly served. He died at Dakar on his homeward voyage on 14 September 1905. His report was never published by the French Government, but Challaye, one of his trusted subordinates, in *Le Congo Français* sums up the situation of the natives as follows:

'The Concessionaire companies make them labour for a trifle, using menace or even violence to secure their services: and the Government, without rendering a single service, crushes them with taxes and corvées. Instead of being drawn towards the Europeans, as formerly, they doubt them and flee as far as possible. The routes habitually used by Europeans are almost denuded of villages, whereas formerly the natives used to cluster there. Regions described by the first explorers as inhabited and fertile have become deserts.' (Translation quoted from Roberts's *History of French Colonial Policy*.)

Notwithstanding the suppression of de Brazza's report, public opinion in France was, to its credit, thoroughly roused, and the Government's task of liquidating the situation was made easier by the failure of many of the companies, though several, so far, had shown a profit. Many concessions lapsed, and surviving companies were found willing to cut down their responsibilities and accept smaller areas with circumscribed powers. But reforms took time, and it was not till about 1930 that the last vestige of the régime of the earlier concessions had disappeared. The present terms of the few older surviving concessions, and of any granted since, are fair and reasonable to all parties. The interests of the natives are fully protected and large reserves are set aside—on the ground as well as on paper.

Though several companies had made profits, and contributed both to the development and revenue of the colony, the general effect of the system was bad. Capital was frightened, and France was not prepared to spend money in development for many years afterwards. Moreover the companies concerned did not combine to provide

those general, all purpose, roads and railways necessary for development. In some cases inland water transport was organized, and some local roads were built, but it remained for the government to build the port of Pointe Noire and the railway from there to Brazzaville, as well as to plan and construct general highways.

During the Great War, as might be expected, trade virtually ceased. By the Convention of St. Germain-en-Laye, signed by the Allies in 1919, the provisions of the Berlin Act limiting the amount of duties leviable in the Congo basin was removed, and now the government can impose such tariff as it wishes, provided that all the Allies and the U.S.A. receive equal treatment. Under Sarraut's *mise-en-valeur* policy development was resumed energetically, to be halted for some years by the economic crisis of the thirties. Barely was development well under way again when war broke out once again in 1939. Truly French Equatorial Africa can complain of her luck.

THE CAMEROONS BEFORE 1914

The first modern European settlement in the Cameroons was made in 1845 by British Baptist missionaries under Alfred Saker, near Douala. It was followed shortly by an offshoot of the same mission on the west of the river; this was named Victoria. Converts were kept under strict discipline, enforced when necessary by corporal punishment. In 1862 Captain Burton, with Saker, climbed Mount Cameroon, 13,350 feet high, and described it, in his report to the British Government, as suitable for a sanatorium. He added, further, that an excellent harbour could be made at Ambas bay. Almost all trade was in British hands, though the German firms of Woermann from 1868, and Jantzen and Thormaehlen from 1875, had their share. All trade was conducted from hulks till 1881, when shore establishments were first started. The British Consul was recognized by all as the ultimate local authority, though disputes were settled at semi-official courts of equity, in which chiefs and traders, British and German alike, took part. In 1877 the Douala and other chiefs requested Great Britain to establish a protectorate. The British Government toyed with these requests, fearing French rather than German opposition, but finally made up its mind in 1884, and sent instructions to Consul Hewett to make treaties of protection and friendship with the chiefs. This he did in what is now Southern Nigeria, but on arriving at Douala on 19 July found that the Kings Bell and Akwa,

tired of waiting for the British answer, had acted on the 14th, and had made a treaty with Dr. Nachtigal, who was representing Germany.

Dr. Nachtigal has already been mentioned as an explorer. At this time he was, ostensibly, inquiring into the state of German commerce on the coast. Bismarck had reported, in that sense, to the British Government, which had promised its help. In the light of subsequent events it seems clear that annexation was in the German mind from the outset. Some details of German occupation are given later in the description of Douala itself (p. 337).

There now followed a race between German and British to secure agreements with chiefs, to the accompaniment of recriminations on both sides of the North Sea. Though treaties had been made with them by their chiefs, the Germans were, even then, nowhere popular with the natives. Priso of Hickory Town revolted against his superior chief Bell, who had made a treaty with them and in the fighting, German Marines, in support of Bell, destroyed the Baptist Mission buildings.

An arrangement was reached with Great Britain on 29 April 1885 which recognized German claims except in the case of Victoria, which had been proclaimed British territory, owing to the long occupation of the missionaries, though no settled government had been instituted. It was really a question of compensating the Baptists, and when this had been achieved after much haggling, British claims were abandoned (in 1886) and the Basle Mission took over the work of the Baptists.

France recognized the German Protectorate by a treaty of 24 December 1885, which laid down the Campo river as the frontier. But the Protectorate was not effective far inland, and German traders naturally wished to see the hinterland explored and effectively occupied.

German Penetration

Bismarck contended that this should be done largely at their own expense, to which, not unnaturally, they demurred. He was therefore compelled to appeal to the Reichstag, and to take that difficult body into partnership, a step he was accustomed to take as seldom as possible. Indeed, Bismarck's anxiety to keep colonial affairs from the Reichstag, which at that period disliked German overseas expansion, is the key to much that happened in German colonial circles during the early years of the Cameroons' history.

Trade from the interior to the German coast passed through the hands of the Douala tribes, who had no intention of yielding their

profitable monopoly without a struggle. On each side of the new territory the English and French controlled the inland waterways, down which passed much of the trade of the interior. It was therefore doubly necessary for the Germans to open up the hinterland and to provide it with communications to their own coast. Traders tried to persuade missionaries to go to the interior and get into touch with the natives, since even missionaries might need military protection, and the Reichstag could hardly refuse to supply funds for the protection of such peaceful agents of German *kultur*. From 1885 onwards the region round the Cameroon mountains was explored, and treaties were made. It was soon clear that the lower slopes were suitable for European exploitation, but, unfortunately, it became equally clear that the Rio del Rey was not a navigable river. Zintgraff, who had been exploring near the coast, established stations at Barombi (near the present John Albrecht's Hohe) and (in 1889) at Bali (south-west of Bamenda) making the usual treaties. From Bali he explored to Ibi on the Benue, but was prevented from entering Adamaoua country. He armed 2,000 natives in order to force an entry, but the expedition was never made, and the guns and rifles issued were useful later on against the Germans themselves. By 1894 the Germans had abandoned hope of getting far north on this side, and turned their attention to approaches from the south and east.

In 1888 a station was founded at Yaoundé. In his efforts to keep clear of the Reichstag, Bismarck again approached the traders, who were still unwilling to spend money in opening the country for the benefit of their rivals as well as themselves. Bismarck, however, decided that his promise of free trade to the English did not prevent him from granting monopolies in certain areas, however large, so long as it was understood that the claim of other applicants for similar monopolies should at least be considered. Behind this rather transparent curtain, monopolies in considerable areas were granted in 1890 to the firms of Woermann, and Jantzen and Thormaehlen. Under their auspices, in 1890 and 1891, Morgen made a journey of exploration and trade through Nguila, Yoko, Tibati, and Banyo, arriving at Ibi on the Benue, and returning with a quantity of ivory. The Adamaoua Moslems, with whom he wished to make treaties, refused to do so without the prior consent of the Emir of Yola, their superior, who was himself under the suzerainty of the Emir of Sokoto.

In 1893 the boundary between the Cameroons and Nigeria was carried up to Chad, leaving Yola to the British, but most of the Adamaoua country to the Germans. The French were not consulted,

the English being anxious to keep them away from the Niger. Negotiations with France as to the hinterland were concluded after acrimonious discussions by the Agreement of 15 March 1894, which gave Germany access to Lake Chad, despite France's stronger claim by occupation.

It was under Von Puttkamer (Governor from 1895 to 1906) that the main German penetration took place. His method of military occupation was little to the liking of the influential Woermann, who had established missionaries at Edea as an aid to trade, and had hoped to follow the same course in Adamaoua. Dominik, in 1895, persuaded the Hausas from Tibati to bring their wares to the German coast instead of to Ibi. In 1898 Carnap-Quernheim travelled east to the Sanga, erecting stations and endeavouring to attract to German territory the rubber and ivory flowing to the Congo.

In this year, in despair of getting adequate funds from the Reichstag, the government gave the whole task of the exploitation of an area in the south-east of some 37,000 square miles (considerably larger than Bavaria) to the monopolistic Gesellschaft Sud Kamerun; this concession was reduced in 1905 to 5,800 square miles and was sequestered by the French in the War of 1914-18. In the following year a similar area on the western frontier was given on similar terms to the Gesellschaft Nord-west Kamerun. This last company was also put under an obligation to aid in development towards Chad. It failed to carry out its duties and its rights expired in 1913. Meanwhile a road was completed from Edea to Lolo, and water and road transport were slowly established to Doumé via the Nyong. In June 1898 Dominik advanced to the northern edge of the forest on the Sanga, in the following year Kamptz captured Tibati, and in 1901 Dominik subdued the Adamaoua, placing garrisons at Garoua and Maroua. Puttkamer himself visited this territory and installed residents to control the Moslem administration which he retained. With the completion of this task in 1905, penetration and pacification was complete. Though there had been much fighting, it had led to less bloodshed than French penetration farther east. Natives of Dahomey, Liberia, and Sierra Leone comprised the forces used in the earlier stages, but were replaced later by Sudanese, and by troops recruited on the spot.

Franco-German Treaty of 1911

In 1911, as part of the general settlement between France and Germany after Agadir, the Cameroons were enlarged at the expense

of French territory to the east. The southern German boundary was carried south of Spanish Guinea a little north of Libreville; a tongue of territory was yielded on both banks of the Sanga, giving Germany access to the Congo, while farther north a similar tongue along the Lobaye gave her access to the Ubangi. In all she received some 100,000 square miles of territory, enlarging her colony by about 50 per cent., the only local compensation gained by France being some 15,000 square miles in the region of Chad. The right of pre-emption over Spanish Guinea, granted to the French in 1900, also passed to the Germans. French Equatorial Africa was thus cut into three separate blocks, divided from each other by German territory. French Equatorial Africa was sacrificed to gains in Morocco; de Brazza to Lyautey; and the results would have been disastrous had they not been wiped out by the victory of 1918 (see Fig. 62).

Administration

As it has passed away, it is not necessary to describe the German system of administration at any length. From what has been previously stated the difficulties in Germany itself will be appreciated. Colonies were first directed by the *Kolonialabteilung*, a section of the Foreign Office, and only in 1907 was a separate Colonial Department (*Kolonialamt*) instituted.

Locally the Governor had authority to issue decrees for general administration, which could, however, be disallowed by the Chancellor. From 1903 onwards he was assisted by a council of nominated official and unofficial members, all Europeans, and it is clear that this body, though only advisory, exercised a considerable influence on legislation. Control in the first instance was military, but as the necessity passed away, civil districts (*Bezirke*) were established. By 1914 there were twenty districts, seven of which were still under military control.

Though administration was generally by direct rule, the Adamaoua country was administered by its own Fulani chiefs under the control of Residents.

There were different sets of courts for Europeans and natives; minor offences by the latter were tried by courts composed of native chiefs, but the District Commissioner had concurrent jurisdiction. There was a standing military force of about 1,500, which, by calling up reserves and enlisting Europeans and natives, was expanded to about 10,000 during the war. Civil or semi-military police numbered

THE CAMEROONS

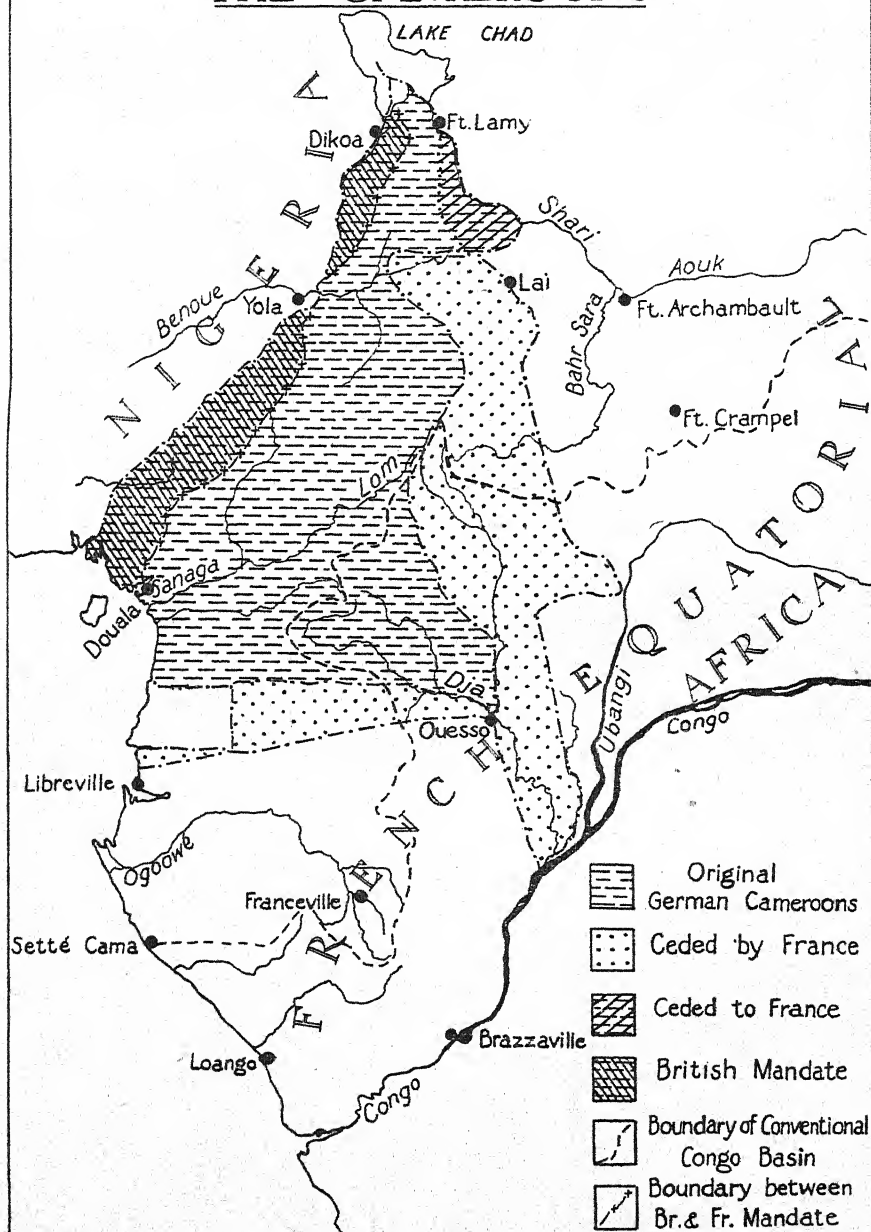


FIG. 62

about 1,150. Excluding military officers, the number of German officials was 70 in 1900, 110 in 1905, and 238 in 1912.

In their dealings with the natives the Germans were undoubtedly brutal at times, and there were not a few scandals; but Mr. Rudin, in his *Germans in the Cameroons*, sums the matter up on p. 210 as follows:

'Interviewing both whites and natives who lived under German rule, the author was surprised to learn of the very warm affection that natives had for many German officials. The gist of all comments acquired under different circumstances and in ways that suggested no leads to desired answers, was that the Germans were strict, sometimes harsh, but always just.'

The problem of transport was a great hindrance to trade development, and it is estimated that at one time 85,000 carriers were employed between Kribi and Yaoundé alone. Roads were gradually made both by Government and by concessionaires, but these were still used in 1914 almost entirely for head-transport, for there were only six motor vehicles in Kribi, and only 310 miles of roads fit for motor traffic in the whole colony. The first railway—the Nordbahn, 100 miles long—was opened in 1911 from Bonaberi to Nkongsamba. The only privately owned railway in the German Colonial Empire, it paid dividends in 1912 and 1913. The other railway—the Mittel-land-Bahn—a Government concern, was to run from Douala to connect with water transport on the Nyong. Ninety-four miles out of 225 were open for traffic when war broke out.

Land Policy

When the Germans first occupied the Cameroons they undertook to respect native rights. A native was free to sell any land to which he could prove his title. But native ideas on land ownership rest on the tribe or the family, not on the individual, and when the Germans followed the French example of granting concessions native ideas were almost as upset as they were in French Equatorial Africa. The Germans did not, however, subordinate native interests to the same extent. The Basle Mission fought hard, and with considerable success, for native rights in the land.

Nevertheless German land policy led to a good deal of unrest which, at times, broke out in open revolt as at Douala in 1885, and again in 1914 when Manger Bell, a Douala chief, was executed.

In 1896 all unoccupied land was declared crown land.

In 1911 the enlargement of the colony brought fresh land problems to the German Government, for some 15,000 square miles of French concessions (due by arrangement with the French Government to expire finally in 1929) came into German territory. Germans objected to the continuance of these concessions, arguing with some show of reason that they were contrary to the Congo Basin Conventions. Negotiations followed and would probably have reached a successful conclusion but for the outbreak of war.

All concessions to Europeans had to be registered in the German *Grundbuch*. After the war the French recognized the validity of such titles, though not their enemy owners, but confiscated property in barren lands.

THE WAR OF 1914-18 AND AFTER

As will be remembered, the treaty of 1911 had given Germany two strips of territory with outlets on the Congo and the Ubangi. Advance posts in both of these were captured by the French in the opening days, and columns advanced along the Sanga, under Hutin towards Lomié and along the Lobaye, under Morrison towards Doumé. Colonel Largeau from the north seized Kousseri (Fort Foureau) near Lake Chad on 21 September. Though a British column from Nigeria was unsuccessful against Mora, which held out to the end of operations, Maroua was occupied by the French on 12 December, thus clearing the Chad region except for Mora. In the middle of September an Anglo-French force under General Dobell took Douala after a naval bombardment, capturing 400 Germans and 30,000 tons of shipping. Zimmermann withdrew to Edea, which was occupied after hard fighting on 26 October, the Germans falling back east on Yaoundé, 100 miles away. By the end of 1914 the British had cleared the country between the Nigerian frontier and the Cameroons river, and held Bouéa and the railway line to Nkongsamba. Elsewhere nothing further took place in that year except a small advance by Hutin. On reorganization and reinforcement Brig.-Gen. Cunliffe took command in the north where the Germans had resumed the offensive. Four columns advanced on Yaoundé: Dobell's force, however, had to withdraw in June owing to sickness and the rains, after getting within 40 miles of their objective. Cunliffe, having occupied Ngaoundéré on 28 June, also halted. Hutin took Lomié on 25 June and Morrison took Doumé next month. The general advance was resumed by all four columns in October after the rains. Their total strength was about 15,000, with 10,000 of the enemy

against them. The British reached Mangas in the open about 50 miles west of Yaoundé on 17 December, and on the 21st the French after severe fighting reached Mangélé, 20 miles to their south-east. The British pushed on without waiting for the French and entered Yaoundé without opposition on 1 January 1916. As soon as Zimmermann knew that his enemies were clear of the forest, he evacuated Yaoundé, and with the Governor made for Spanish Guinea, 120 miles away. He was pursued and, after fighting on 8 January, escaped and was interned. Mora, which had held out since the start, surrendered on 18 February and thus brought operations to an end.

An agreement signed at London on 4 March 1916 divided the Cameroons between Great Britain and France, the frontier so fixed remaining till to-day, with slight modifications in favour of Great Britain in the north, and of France in the south. The British portion, which is now administered by the Government of Nigeria under a 'B' mandate of the League of Nations dated 22 July 1922, now passes out of this story. The French portion, nine-tenths of the former German colony, was at first administered by French Equatorial Africa. On the settlement after the war those portions yielded to Germany in 1911 were restored to France in full sovereignty, and reannexed to French Equatorial Africa, of which they again form an integral part. The remainder has been held under a 'B' mandate of the League of Nations since 22 July 1922. Details of its government appear in Chapter IX.

Since 1922 the history of the Cameroons under French mandate has been one of steady progress if one makes allowance for the effects of the economic depression.

In 1931 it became necessary to depose the Sultan of Foubam, who had been a thorn in the side of government for many years, and to free the Kirdis of the Mandara in the north from the control of the Fulani, giving them their separate organization. This, it may be said, completed the task of penetration and organization, taken up where the Germans had left it.

This historical sketch can end on a note of good omen. On 26 August 1940 M. Eboué, the coloured administrateur of Chad, backed by the commandant of the troops, declared for General de Gaulle. A few days after, despite the protests of the Governor-General, who was promptly interned in the Belgian Congo, the whole of French Equatorial Africa followed suit, while in the meantime on 27 August the French Cameroons placed themselves under the orders of de Gaulle's

officers. General de Larminat was appointed *Haut Commissaire de l'Afrique Française libre*, and in the first Libyan campaign his troops raided Murzuk and occupied Kufara (Kufra).

APPENDIX I

List of Treaties affecting the Boundaries of French Equatorial Africa and the Cameroons

- 1884-5 Berlin Conference. Recognition of Congo Free State.
Boundary Treaty between France and the Congo Free State.
- 1885 26 February. General Act of the Berlin Conference.
- 1885 29 April } Anglo-German Agreement *re* Cameroons.
16 June }
- 24 December. Franco-German Agreement *re* Cameroons.
- 1886 12 May. Boundary Convention between France and Portugal.
- 1887 Great Britain finally cedes Ambas Bay to Germany.
- 1887 29 April. Boundary Convention between France and the Congo
Free State respecting the boundary on the river Ubangi.
- 1890 1 July. Anglo-German Treaty *re* Cameroons (the main boundary
convention between the two Powers).
- 1893 14 November. Anglo-German Boundary Convention (extending
boundary up to Lake Chad).
- 1894 15 March. Franco-German boundary carried up to Lake Chad.
- 1894 14 August. M'Bomou river constituted the boundary between
Ubangi-Shari and the Free State (the settlement now in force
between France and Belgium).
- 1898 14 June. Anglo-French boundary from the Niger to Lake Chad.
- 1899 21 March. Anglo-French Egyptian Treaty fixing the boundary
between French territory and the Sudan (the final settlement
after the Marchand expedition).
- 1900 27 January. Boundary between the French Congo and Spanish
Guinea, France securing the right of pre-emption.
- 1901 25 January. Agreement between France and Portugal settling the
boundary of Cabinda.
- 1902-13 Various Anglo-German Agreements further defining details of
the boundary between Nigeria and the Cameroons.
- 1904 8 April. Anglo-French Agreement further defining the boundary
from the Niger to Lake Chad.
- 1911 4 November. Franco-German Treaty giving Germany large
extensions of territory; the French right of pre-emption on
Spanish Guinea passed to Germany.
- 1912 28 September. Franco-German Declaration, settling details of
the last-mentioned.

- 1916 4 March. Anglo-French Agreement as to the division of the Cameroons.
- 1919 10 July. Modification of the last.
- 1919 Convention of St. Germain-en-Laye by which the restriction on duties in the Congo basin were removed, but all members of the League and the U.S.A. must be treated alike.
- 1922 22 July. Mandates issued to France and Great Britain in respect of the Cameroons.
- 1935 7 January. Treaty between Italy and France, signed at Rome, defining the northern boundary of French Equatorial Africa and French West Africa with Italian possessions. Under this treaty Italy obtained 114,000 square miles.

CHAPTER IX

ADMINISTRATION

I. THE FRENCH COLONIAL SYSTEM

IN order to obtain a clear picture of the government of any French colony in tropical Africa it is necessary first to appreciate the French outlook on colonies and the policy France has pursued in the last hundred years. It is also desirable to have some idea of the central organization in Paris, and of the composition and arrangement of the Colonial Civil Service. All these differ fundamentally from their counterparts in Great Britain.

French policy does not aim at fitting the inhabitants of her colonies for eventual and complete self-government. On the contrary it aims at drawing them all into a greater France, governed from Paris. Coastal Algeria, for example, is already an integral part of France, and inhabitants of the old colonies of Martinique, Guadeloupe, and Réunion are born French citizens.

The necessity for a partial decentralization of local government has been forced on French attention by the spread of her African empire, and by the differing circumstances of the widely contrasted countries and peoples under her rule. In the older colonies limited powers are entrusted to *conseils généraux* elected on a wide franchise. Increased powers of legislation, mostly in the sphere of native affairs, have recently been delegated to Governors-General. In the main, however, the colonies are still, as they always have been, governed from Paris. In French policy the benefit of the colonies, though important, is a secondary aim, giving way the moment it comes into opposition with the higher aim—the benefit of the empire as a whole. This fact is exemplified in the *mise-en-valeur* policy of recent years.

Policies of Assimilation and Association

The French general principles are subordination, centralization, and uniformity. Subject to these principles the French, during last century, attempted to deal with their colonies, and in particular with native problems, by the policy of 'assimilation'. Roughly speaking, the opening years of this century mark the abandonment of 'assimilation' in favour of 'association'. Assimilation may be said to have as its object the progressive creation of true French departments. As

regards the native, the aim was gradually to extirpate native law and custom and to substitute complete French civilization. It is this policy of assimilation which enables natives to acquire full French citizenship. Frenchmen born in France, in the old colonies, and certain old-established settlements elsewhere are French citizens by birth, whatever their racial descent, and as such enjoy all the rights of a citizen of Paris. In colonies which enjoy representation citizens alone have the franchise. Other natives are not citizens but subjects. The distinction between citizens and subjects before the law is dealt with later.

Towards the end of the century it became clear that this 'utopian policy' of assimilation was leading nowhere. The native saw his old institutions attacked, and found nothing satisfactory in what he was offered to replace them. France recognized this policy as a failure: the policy of association was evolved and has gradually, and, since the last war, increasingly, taken its place. It is very much akin to the policy of indirect rule long adopted in Nigeria, and more recently in other British African colonies. Administratively it is to develop native institutions under the guidance of the European, but along their own lines.

There is still, however, the same strong control from Paris, and the idea prevails that the interests of any individual colony in whatever sphere, though furthered as far as may be, must immediately give way should they in any way conflict with those of the empire as a whole.

Tariff Policy

In the economic sphere up to the period of the Second Empire the trade of the French colonies in both directions was restricted to the mother country and all navigation confined to the French flag. Napoleon III, however, relaxed this rigid system, allowing considerable freedom, though the colonies still have no power to draw up their own tariffs. The present tariff system rests upon parliamentary enactments (the laws of 11 January 1892 and 13 April 1928 are the principal statutes) and divides French colonies into two groups:

1. Assimilated Colonies, whose tariff is that of metropolitan France.
2. Colonies which have their own special tariff.

In the second class also fall the mandated territories of Togo and Cameroon, the terms of whose mandates forbid any preference. In certain colonies of this class, French trade has preference, in others

it has not. Tariffs are drawn up in Paris, but local authorities have the right to make representations to the Minister in cases where the interests of France are likely to damage local trade.

Legislation

In a British colony practically all legislation is passed through a council which contains unofficial representation. The views of unofficial members can usually be, and frequently are, voted down by the official majority, but they afford a valuable safety valve, and many a Bill is withdrawn or amended in important particulars owing to opinions expressed in Council. It is true too that the Crown still uses at times its power to legislate by Order in Council for the Crown Colonies, but this is very exceptional. The French Parliament, however, can and does legislate for the colonies, and the right of Parliament to impose taxation upon them was asserted in 1893. But an Act of Parliament (*Loi*) does not apply to the colonies unless it is specially so stated, and generally legislation for them is enacted by decree (*décret*) of the President as the successor of the Emperor, on whom this legislative power was conferred by Senatus Consulte of 3 May 1854. Naturally, though not by law, such decrees are usually made on the advice of the Minister for the Colonies, to whom they may have been recommended by the local authorities. Before coming into force in any colony, the presidential decree must be promulgated locally by order (*arrêté*) of the Governor or Governor-General.

Ministry of Colonies

For centuries (certainly from 1669) the colonies were administered by the Ministry of Marine. In 1881 an Under-secretary of State for the Colonies was appointed and attached to the Ministry of Commerce, but shortly put again under the Ministry of Marine. The post was frankly experimental, and the Under-secretary was, in reality, nobody's child. By a parliamentary enactment of 20 March 1894 a Minister of the Colonies was created. Algeria, however, remains under the Minister of the Interior, while Morocco and Tunisia are administered by the Foreign Office. Indeed one-fifth of the population of overseas France is not administered by the Colonial Office, but with this fifth we are not closely concerned.

Conseil Supérieur de la France Outremer

Attached to the Ministry is the *Conseil Supérieur de la France Outremer*, whose function is to furnish advice on questions and

proposals relating to the Colonial Empire submitted to it by the Minister. Originally constituted as the *Conseil Supérieur des Colonies* in 1883, it ceased to function after three years, was reconstituted in 1920, and again under its present title in 1937. It sits in two sections: (1) *Section économique*, and (2) *Section de législation*. On both sections sit the senators and deputies of the colonies represented in Parliament, delegates specially elected by French citizens in the colonies (Equatorial Africa sending one), and representatives of the native population nominated by the Governor.

To the economic section the Minister nominates representatives of various interests both at home and in the colonies, and to the legal section two members of the Council of State and various legal experts. The names of the two sections are sufficiently indicative of the scope of their activities. Each meets twice a year, and the two may be combined in plenary session under the presidency of the Minister if occasion so demands.

This final reconstitution eliminated the official element of retired Ministers and Governors-General, who previously had *ex-officio* seats.

Inspection

A feature unknown to the British colonial system is the Inspection Service. The members of this branch visit each colony at frequent intervals, and have very full powers of inquiry into all Colonial services both in France and in the colonies. Though they have no executive authority, they have access to all official documents, even the most confidential, and report direct to the Minister. The Inspectorate is a closed service, and its members cannot transfer to the administrative staff.

The French Colonial Civil Service

The French Colonial Civil Service is organized into two large divisions: (1) *Administrateurs des Colonies*, whose terms of service are fixed by decree, and (2) *Agents des Services*, whose terms are settled by arrêtés of the various Governments.

The *Administrateurs des Colonies*, after a course of between two and three years at the *Ecole Nationale de la France d'Outremer*, pass out as probationers (*élèves-administrateurs*). They then become (1) *Administrateurs-adjoints*, which grade is divided into three classes; (2) *Administrateurs*, also in three classes, and (3) *Administrateurs-en-chef*. Secretaries-general are no longer a special class, but are drawn from the general administrative service. The posts of Governor and

Governor-General are filled either by promotion from the administrative service or from outside.

The Tropical African Service is organized as a single unit, and transfers may be made within it from one colony to another.

The terms *chef de région*, *chef de département*, *chef de subdivision*, and others have reference to the post which an officer is actually filling locally, and not to his rank in the Colonial Service. Thus a *chef de subdivision* in French Equatorial Africa might be an *administrateur* or an *administrateur-adjoint*.

The second large division, the *agents des services civils*, is organized by local *arrêtés* in the various colonies, and its members are not subject to transfer. They are divided into three classes: *commis*, *adjoints*, and *adjoints-principaux*. They are auxiliary, but always subordinate to the other division.

Theoretically it is possible for an agent to enter the administrative division by passing into and through the *Ecole Nationale*, but in practice this seldom occurs.

There is no colour-bar in either division. Many of the agents are natives of the colony in which they are serving, and a talented native, M. Félix Eboué, became Governor of Chad and later Governor-General of French Equatorial Africa.

2. POLITICAL ORGANIZATION (see Fig. 63)

In this section it is intended to describe the governments of French Equatorial Africa and of the Cameroons under French mandate as they exist at present, referring only to earlier administrations where such reference is necessary to explain the existing system. Earlier systems have been mentioned already in Chapter VIII.

French Equatorial Africa has been called the Cinderella of the French Empire. At no time does it seem to have had an administrative staff adequate to its needs. As a colony it has had a chequered history, and great difficulty in raising the revenue required for development, with only moderate and spasmodic help and interest from the mother country. During this war its difficulties have greatly increased, and it must be assumed that improvisations of administration have modified the arrangements outlined in this volume.

A. French Equatorial Africa

Governor-General

The Governor-General, whose office was created by a decree of 15 January 1910, is 'the depositary of the powers of the Republic'

throughout the territory under his government, and has the supreme direction of all services, both civil and military. He is responsible for the policy of defence of the colony, but is not in personal command of the forces, naval, military, or air. He is the sole channel of communication with the Ministry of the Colonies.

As is usual in French colonial practice, most important legislation is enacted in Paris, although in general terms only, whilst the Governor-General fills in minor details and penalties and publishes the whole by his order in council, or *arrêté*. In native affairs the Governor-General is left more discretion. He can enforce taxation, other than customs duties, and prepares the budget for the approval of the Minister.

Conseil d'Administration

He is assisted by the *Conseil d'administration*, a body consisting of the Secretary-General of the colony (the second figure in the official hierarchy), the Governors of Gabon and Ubangi-Shari, the commandant of Chad, the general commanding the troops, the *Procureur-Général*, and the delegate of the colony to the Conseil Supérieur de la France Outremer, together with four French citizens elected by the Chamber of Commerce, and four French subjects (i.e. natives, not citizens) elected by the native regional electoral colleges, which consist of minor officials, chiefs, and others of standing. This council must be consulted on the budget, loans, important public works, concessions, and various other matters, and may be called upon to advise on any matter which the Governor-General sees fit to put before it. It must meet at least once a year, and, when not in session, is represented by a *Commission permanente*, or Standing Committee, comprising all those members who reside in Brazzaville. In an emergency the Commission permanente has all the powers of the full council. The council is advisory only, and its recommendations are submitted to the Minister, who should, strictly speaking, confirm them by decree. This approval, however, may be taken for granted if no decree countering them is made within 3 months of the submission. The council's present constitution and powers rest on a decree of 31 December 1937, promulgated by *arrêté* of 26 January 1938. These measures regulated also the *conseils des intérêts locaux*, to be mentioned later.

The Four Territoires

Previous to 1934 French Equatorial Africa was a federation of four colonies, Gabon, Moyen Congo, Ubangi-Shari, and Chad, each

ADMINISTRATION

FRANCE

French Parliament (Paris)

Minister for the Colonies

Advisory

Conseil Supérieur de la France Outremer

Supervisory

Inspection Service, reporting directly to Minister

—FRENCH EQUATORIAL AFRICA—

Governor General (Brazzaville)

Secretary General

Conseil d'Administration

TERRITOIRES (each with Conseil des intérêts locaux)

(1) GABON

Chef de Territoire
(Libreville)

Commune Mixte
(Libreville)
Administrateur-Maire

Departments (7)

Chef de Département

Subdivisions (23 in all)

Chef de Subdivision

Departments (10)
Subdivisions 32
as in
GABON

Commune Mixte
(Bangui)
Administrateur-Maire

(2) UBANGI-SHARI

Chef de Territoire
(Bangui)

(3) MOYEN CONGO

Directly under
Governor General
(Brazzaville)

Commune Mixte
(Brazzaville)
Administrateur-Maire

Departments (10)
Subdivisions 36
as in
GABON

(4) CHAD

Commandant du Territoire
(Fort Lamy)

Commune Mixte
(Fort Lamy)
Administrateur-Maire

Departments (10)
Subdivisions (36)
as in
GABON

—CAMEROONS—
(Mandate)

Commissaire de la République

Secretary General

Conseil d'Administration

Regions (17), each with Conseil des Notables

Chef de Région

Subdivisions (47 in all)

Chef de Subdivision

Note: Names of bodies and areas in upright.
Names of appointments and people in sloping.

FIG. 63

under its own lieutenant-Governor, and each with its separate budget, though a further budget for services common to the whole federation was prepared by the Governor-General, under whose guidance each separate colony was administered. By the decree of 30 June 1934 the federation became a single colony, its four component parts thenceforward being known as *régions*, till a further decree of 31 December 1937, when they became *territoires*.

The capital of the colony is Brazzaville, from which town also the territoire of Moyen Congo is directly administered by the Governor-General. Gabon and Ubangi-Shari are each placed under a *Gouverneur des Colonies* with the title of *chef de territoire*, headquarters being at Libreville and Bangui respectively. Chad, till this decree subordinate to Ubangi-Shari, is now directly subordinate to the Governor-General under an *administrateur-en-chef des Colonies*, with the title of *Commandant du territoire*, his headquarters being Fort Lamy.

Conseils des intérêts locaux

In each territory there is a Conseil des intérêts locaux, somewhat on the lines of the central Conseil d'administration. This council must meet at least once a year, and advise on the estimates to be submitted to the Governor-General, on public works for the territory, and on the working of the *prestation* system, which will be described hereafter.

Headquarters

No precise details can be given of the headquarters administrative offices of French Equatorial Africa or of the Cameroons. No doubt, however, arrangements follow the general lines of French administration. According to its importance each department is a *Direction* or an *Inspection*. All are grouped under the General Secretary (*Secrétaire général*), and the normal division in French colonies is something as follows:

1. Civil and Military Cabinet

Personal Services (appointments, promotions, transfers).

Central Registry—

and probably—

The Cartographic Service (*Service Géographique de l'Armée*).

Meteorological Service.

Note. Actually no organized Cartographic Service is active in French Equatorial Africa.

2. Finance
Estimates, budgets, exchequer, and audit.
3. Political
Police and public security—Information—Native Affairs—Municipalities.
4. Economic
Agriculture and livestock—Forestry—Customs and Excise.
Land registration—Postal and telegraph services.
5. Public Works
Architecture—Buildings—Port installations—Geological and mineral research and licences—Wireless.
6. Health Services
Public health, hygiene.
7. Education
Elementary, secondary, and Moslem education—Arts and crafts.

Départements and Subdivisions

The former *circonscriptions* of each territory have now become *départements*, of which there are seven in Gabon and ten in each of the other territories. The *département* is administered under a chef de *département*, and is further split up into *subdivisions*, each under a junior administrative officer. The present organization of *départements* and subdivisions (in all 127) was settled by an *arrêté* of 28 December 1936, and is as given on pp. 262-9.

Though the areas of the *départements* vary, the average is about 24,000 square miles, very much the same size as Ashanti, or, to take an instance nearer home, slightly smaller than Eire.

Communes Mixtes

Certain limited powers of self-government are possessed by the *Communes mixtes* of Brazzaville, Bangui, Libreville, and Fort Lamy. These bodies consist of four nominated members, one of whom must be a native, under the chairmanship of an administrative officer (nominated by the Governor-General), who, for this purpose, takes the title of *administrateur-maire*. Their functions are purely municipal and are subject to the control of the Governor-General, exercised usually through the chef de territoire. They are now regulated by the *arrêté* of 28 December 1936.

1. GABON (7 Départements)

Headquarters of Territory: Libreville

<i>Département</i>	<i>Chief town</i>	<i>No. of subdivisions</i>	<i>Chief town of subdivision from which it takes its name</i>
Djouah	Booué	3	Booué Makokou Mekambo (Mekampo)
Adoumas	Lastoursville	2	Lastoursville Koula-Moutou
Estuaire	Libreville	4	Libreville Chinchoua Kango Coco Beach (Cocobeach, Mouni)
Nyanga	Mayumba (Mayoumba)	2	Mayumba (Mayoumba) Tchibanga
N'Gounié	Mouila	4	Mouila M'Bigou Mimongo Sindara
Voleu-Ntem	Oyem	4	Oyem Bitam Minvoul Mitzig (Mitzik)
Ogooué-Maritime	Port Gentil	4	Port Gentil Omboué (Fernan-Vaz) Lambaréné Ndjolé

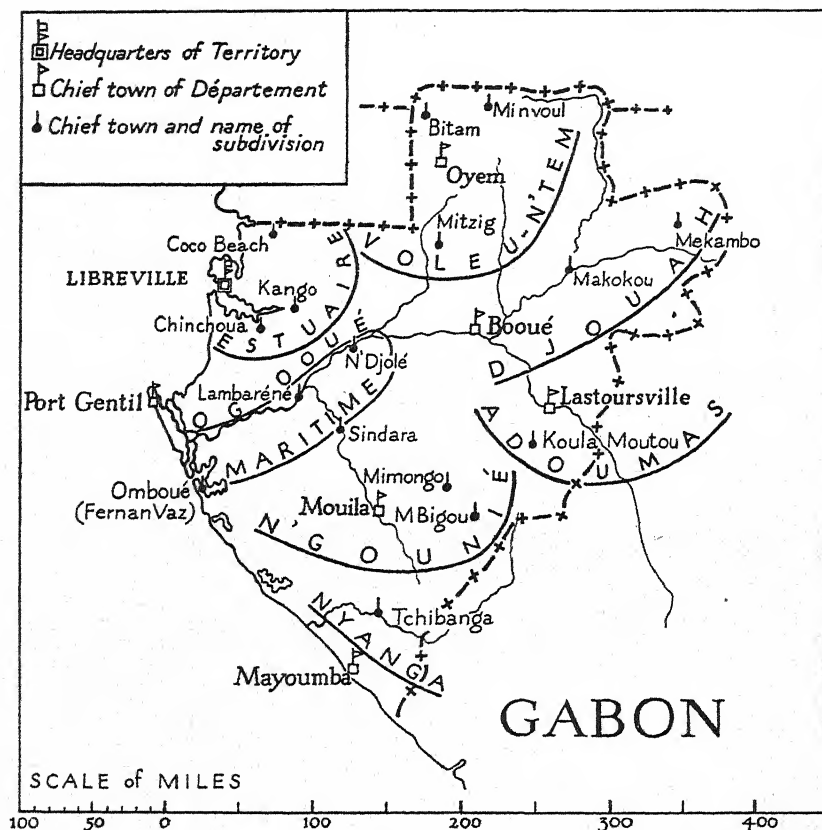


FIG. 64

2. MOYEN CONGO (10 Départements)

Headquarters of Territory: Brazzaville

<i>Département</i>	<i>Chief town</i>	<i>No. of subdivisions</i>	<i>Chief town of subdivision from which it takes its name</i>
Haute-Sanga	Berberati	3	Berberati Carnot Nola
Pool	Brazzaville	8	Brazzaville Kinkala Boko (Boko Songo) Mindouli Madingou Mouyondzi (Mouionzi) Mayama Djambala
Brazzaville (commune mixte)	Brazzaville	1	Brazzaville (commune)
Niari	Dolisie	6	Dolisie N'Tima Sibiti Zanaga Mossendjo (Mossendio) Divénié (Divégni)
Likouala-Mossaka	Fort Rousset	5	Fort Rousset Ewo (Eouo) Abolo (M'Boli) Makoua Mossaka
Haut-Ogooué	Franceville	2	Franceville Okondja
Alima	Gamboma	2	Gamboma Mabirou
Likouala	Impfondo	4	Impfondo Dongou Epana Loukoléla (Loukokéla)
Sanga	Ouessou	2	Ouessou Souanké
Kouilou	Pointe-Noire	3	Pointe-Noire M'Vouti Madingo Kayes (Madingo)

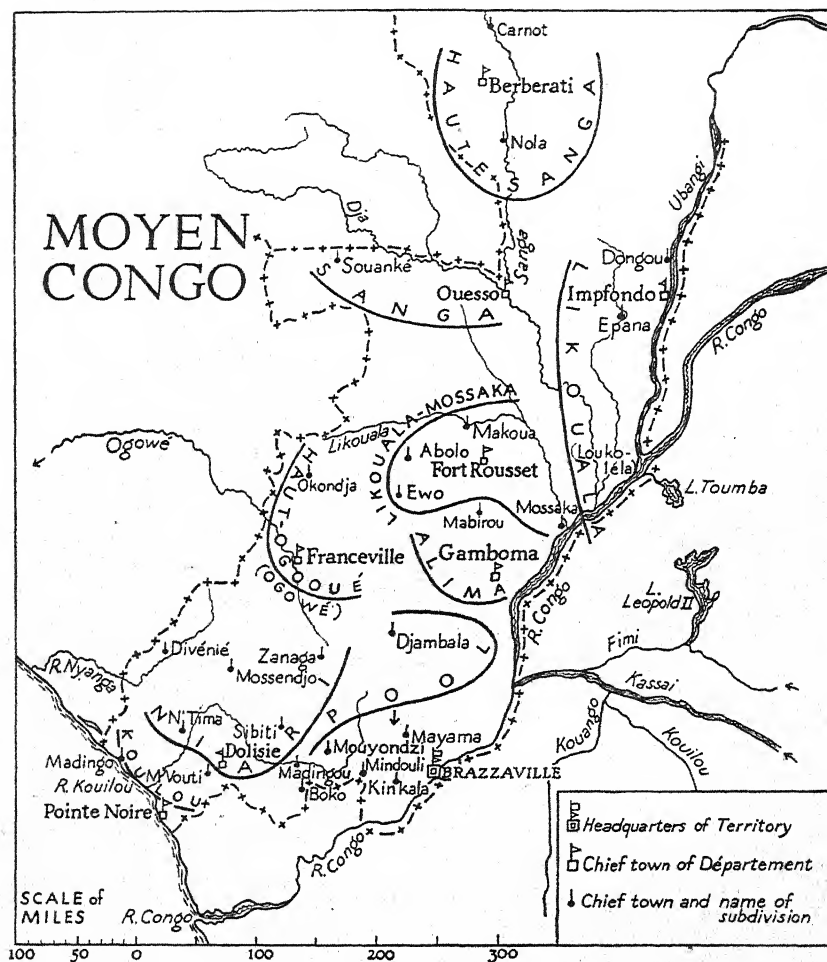


FIG. 65

3. UBANGI-SHARI (10 Départements)

Headquarters of Territory: Bangui

<i>Département</i>	<i>Chief town</i>	<i>No. of subdivisions</i>	<i>Chief town of subdivision from which it takes its name</i>
Ouaka	Bambari	5	Bambari Grimari Kouango Bakala (Morouba) Ippy
Bas-M'Bomou	Bangassou	4	Bangassou Ouango Bakouma Bria
Ombella-M'Poko	Bangui	3	Bimbo Boali (Bouali) Damara
Ouham	Bossangoa	3	Bossangoa Batangafo Bouca (Bouka)
Ouham-Pendé	Bozoum	4	Bozoum Bocaranga (Bougaruga) Paoua Bouar
Kémo-Gribingui	Fort Sibut	3	Fort Sibut Dekoa (Dekoua) Fort Crampel
Lobaye	M'Baïki (Mbaïki)	2	M'Baïki (Mbaïki) Boda
Basse-Kotto	Mobaye	3	Mobaye Alindao Fouroumbala
Dar-el-Kouti	N'Délé (Ndélé)	2	N'Délé (Ndélé) Birao
Haut-M'Bomou	Zemio	3	Zemio Rafai Obbo (Obo)

4. CHAD (10 Départements)

Headquarters of Territory: Fort Lamy

<i>Département</i>	<i>Chief town</i>	<i>No. of subdivisions</i>	<i>Chief town of subdivision from which it takes its name</i>
Ouadai	Abéché	5	Abéché Adré Biltine Goz Beïda Am Dam
Salamat (Selamat)	Am Timan (Am Timmane)	3	Am Timan (Am Timmane) Abou Deïa Mangueigne
Batha (Ba Tha)	Ati	3	Ati Oum Hadjer Mongo
Mayo-Kebbi	Bongor	4	Bongor Fianga Léré Palla
Moyen-Shari	Fort Archambault	3	Fort Archambault Koumra Moissala
Bas-Shari	Fort Lamy	3	Fort Lamy Massakory (Massakori) Bokoro
Borkou-Ennedi-Tibesti	Largeau (Faya)	3	Largeau (Faya) Fada Zouar
Baguirmi	Massénaya	3	Massénaya Melfi Boussou
Logone	Moundou	5	Moundou Laï Kélo Doba Baïbokoum (Baïbokoun)
Kanem	Moussoro	4	Moussoro Mao Rig Rig Bol

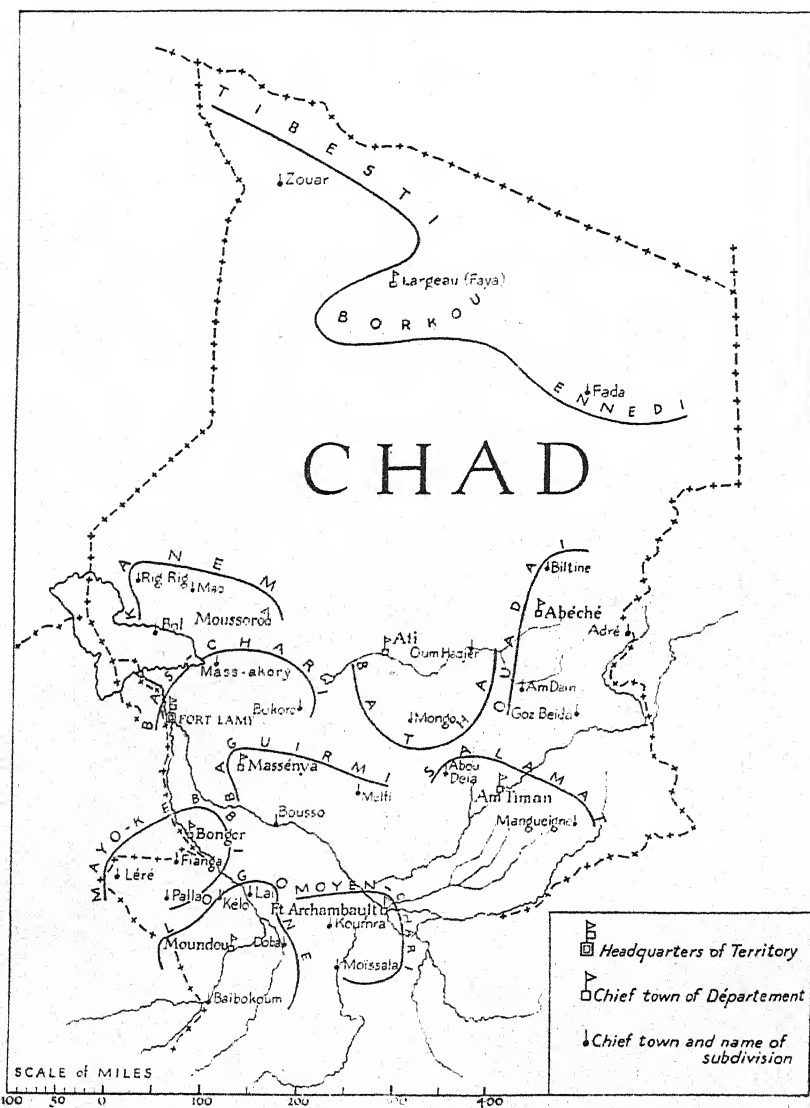


FIG. 67

Staff

For 1934, the latest year for which figures are available, the staff of all civil departments of French Equatorial Africa was 582 Europeans, which is far too few for satisfactory administration, but all that the colony could afford.

B. The French Cameroons

After the defeat of the German forces in 1916 their former colony was divided provisionally between the French and British. The French portion—about nine-tenths of the whole—was administered for the remainder of the war by a Civil Governor, responsible to the Governor-General of French Equatorial Africa. On the conclusion of hostilities the New Cameroons, i.e. some 100,000 square miles which had been handed over to Germany in 1911, was restored to French Equatorial Africa, and has since formed part of that colony (see Fig. 63).

Commissaire de la République

From 23 March 1921 the remainder of the French sphere was administered by a Commissioner (*Commissaire de la République*) with the status of a Governor, independently of French Equatorial Africa. The Commissioner, however, retained his seat on the Conseil d'administration of the colony for discussion of matters of common interest.

Mandate

Since 20 July 1922 this territory (i.e. the German colony as it was prior to the Agadir incident of 1911) has been administered under a B mandate of the League of Nations. By the provisions of Article XXII. 5 of the Covenant, the holder of such a mandate must be:

'responsible for the administration of the territory under conditions which will guarantee freedom of conscience and religion, subject only to the maintenance of public order and morals, the prohibition of abuses such as the slave-trade, the drug traffic, the liquor traffic, and the prevention of the establishment of fortifications or military bases, and of the training of the natives for other than police purposes and the defence of territory, and will secure equal opportunities for the trade and commerce of other members of the league.'

Notwithstanding the above restrictions, the French mandate for the Cameroons, unlike similar British mandates, contains a clause (article 3) which permits any troops raised under the provisions of the

mandate to be used, in the event of general war, to repel an attack on, or for the defence of, the territory *even outside its boundaries*.

Subject to the limitations and obligations of the mandate, the French Cameroons are governed under the authority of the Minister of the Colonies exactly as though they were a French possession, and on almost identical lines with Equatorial Africa.

The Government rests on decrees of 23 March 1921 and 20 February and 28 September 1925.

The Commissioner (Commissaire de la République) is the depositary of the powers of the Republic, and in the mandated territory enjoys the same powers as does the Governor-General in French Equatorial Africa.

Conseil d'Administration

He is assisted by a Conseil d'administration, composed of ten members, two of whom are resident French citizens and two natives (subjects) nominated by him. This council has the same powers and limitations as its namesake in French Equatorial Africa, but, unlike it, contains no elective element. Its constitution rests on decrees of 14 April 1920 and 13 April 1927. Though only bound by law to meet once annually, it held eighteen sessions in 1938, and disposed of 694 matters.

Regions and Subdivisions

The mandated territory is divided into seventeen districts, which were formerly known as circonscriptions, but since 1935 (arrêté of 8 April) as régions. By the same arrêté the name of each individual district except one was altered, the names of the subdivisions remaining unchanged. Each région is in charge of an administrative officer known as chef de région. When called circonscriptions these districts were named after their chief towns. The former name of each région can therefore be ascertained from the second column of the following table of régions and subdivisions (in all 47) which sets out the present organization.

The average area of the régions in the Cameroons, 8,400 square miles (or a little smaller than Sardinia), is much less than that of a département of French Equatorial Africa.

Conseil des Notables




In each région exists a *Conseil des Notables*, which corresponds in organization and functions to the Conseil des intérêts locaux of

<i>Région</i>	<i>Chief town (from which the circonscription took its name)</i>	<i>No. and names of subdivisions</i>
Noun	Tchang	5 Tchang Bafang Bafoussam Bangangté Foumbam
Moungo	NKongsamba	2 NKongsamba Mbanga
Wouri	Douala	1 Douala
N'Kam	Yabassi	1 Yabassi
Sanaga-Maritime (late S. Inférieure)	Edéa	3 Edéa Eséka Babimbi (N'Gambé)
Kribi	Kribi	3 Kribi Lolodorf Campo
M'Bam	Bafia	3 Bafia Ndikinimeki Yoko
Nyong et Sanaga	Yaoundé	4 Yaoundé Mbalmayo Akonolinga Nanga Eboko
Haut-Nyong	Abong Mbang	4 Abong Mbang Doumé Lomié Messaména
N'tem	Ebolova	4 Ebolova Sangmélina Ambam Djoum
Lom-et-Kadeï	Batouri	3 Batouri Bertoua Bétaré-Oya
Boumba-Ngoko	Youkadouma	2 Youkadouma Moloundou
Adamaoua	Ngaoundéré	4 Ngaoundéré Banyo Tibati Meiganga
Benué	Garoua	2 Garoua Poli
Mandara	Mokolo	3 Mokolo Mora Guider
Logone	Maroua	2 Maroua Yagoua
Chari	Fort Fourreau (Kousséri)	1 Fort Fourreau (Kousséri)

CAMEROONS

NAMES of REGIONS

- 1 Noun
- 2 Moungo
- 3 Wouri
- 4 N'Kam
- 5 Sanaga-Maritime
- 6 Kribi
- 7 MBam
- 8 Nyong et Sanaga
- 9 Haut Nyong
- 10 N'tem
- 11 Lom-et-Kadei
- 12 Boumba-Ngoko
- 13 Adamaoua
- 14 Benué
- 15 Mandara
- 16 Logone
- 17 Chari

-  Capital
 Chief town of Département
 Chief town and name of subdivision

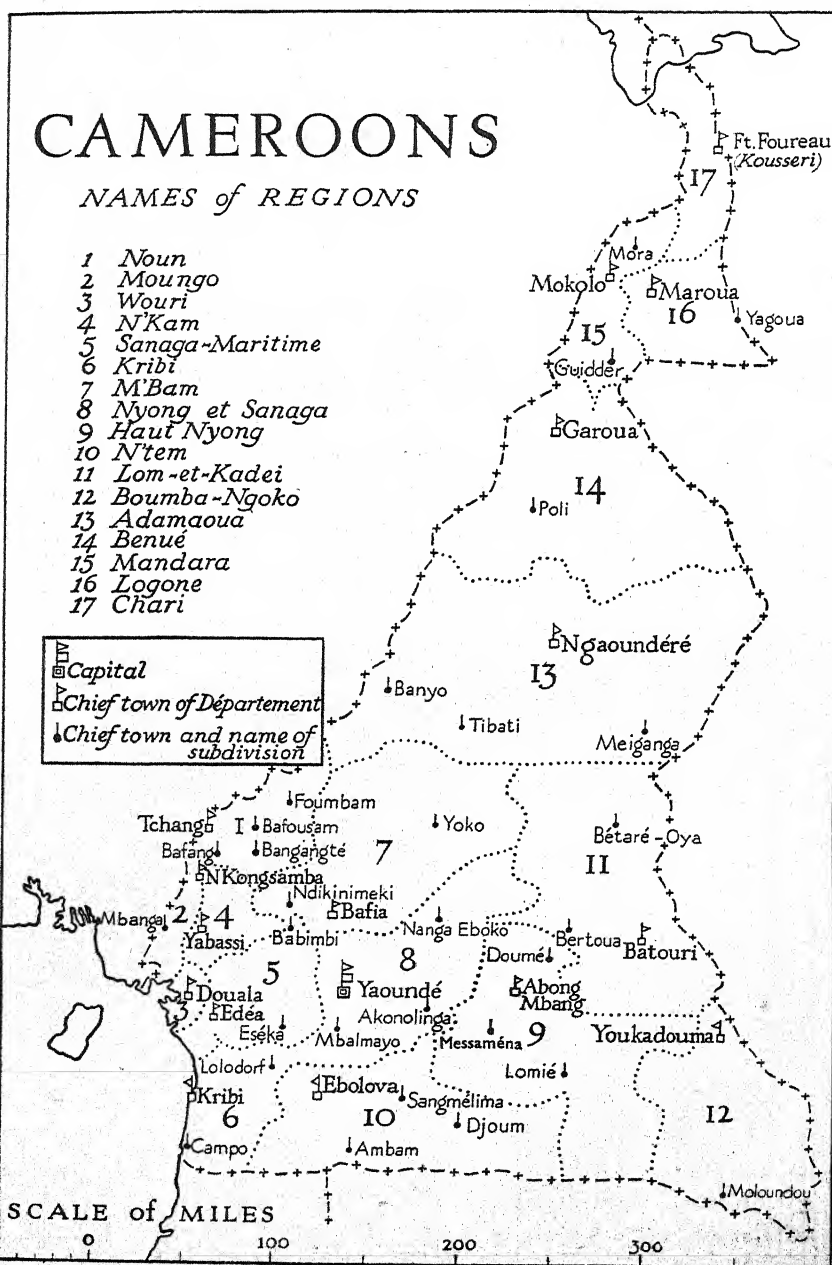


FIG. 68

French Equatorial Africa. None of the unofficial members, however, are elected, but all are appointed by the Commissioner from locally prepared lists of suitable individuals. These councils should, and usually do, meet twice a year under the chairmanship of the *chef de région*. There are no *Communes mixtes* in the Cameroons.

Staff

The Civil Staff of all departments consisted in 1938 of 695 Europeans and 2,363 Africans.

3. THE LAW

On 10 July 1940, after the armistice with Germany, France accepted a new constitution and the French Republic became the French State. French Equatorial Africa and Cameroons, however, repudiated the armistice, and the law is, therefore, stated as it was under the Republic.

The law in force in French Equatorial Africa embraces:

- (a) French Acts of Parliament (Lois).
- (b) Presidential Decrees (*Décrets*).
- (c) Orders in Council (*Arrêtés*) of the Governor-General.
- (d) French Codes.
- (e) Administrative Law (*Droit administratif*).
- (f) Native Customary Law.
- (g) Moslem Law.
- (h) *L'Indigénat*.

The first three have been touched on. The French Penal Code (*Code pénal*) was introduced by Decree in 1877. A decree of 1903 enacted that the civil legislation of Senegal should be in force. The effect of this was to introduce, in a modified form, the French Civil Code (*Code civil* or *Code Napoléon*) and the French Commercial Code (*Code de commerce*), as amended up to the date of their application to the Colony. The *Code civil* contains the Common Law of France. The French Labour Code (*Code du travail et de la prévoyance sociale*) has not been applied as a whole to French Equatorial Africa, but certain amendments, relating to the attachment and surrender of small salaries and emoluments, have been adapted to the colony by a law of 1921.

Droit administratif is a system, found in several continental

countries, whereby cases involving government officials are dealt with by special courts, e.g. if the driver of a military lorry is involved in an accident the case is dealt with by an official court, which, in French Equatorial Africa, is the Council of the Governor of the territoire, and, in the French Cameroons, is the Council of the Commissaire de la République with the addition in either case of two nominated legal members.

At this level (according to the above table of law in force) European Law ends and Native Law begins; and this seems a suitable place to mention the distinction drawn between Europeans and natives in legal matters. The inhabitants of the colony are divided into two classes: (a) French citizens (*citoyens français*), and (b) French subjects or natives (*sujets français*). Citizens are those who have acquired French citizenship by birth or by naturalization, and include natives who have been admitted to it. Native candidates must be 18 years old, monogamous, of civilized habits, educated (themselves and their children) in French, and have given evidence of devotion to French interests (or have been in French employment for 10 years, or be the father of a child by a civil marriage with a Frenchwoman), and have performed their military service. Holders of the *Médaille Militaire* or *Croix de Guerre* can obtain naturalization by simple declaration. With French citizens are grouped Europeans and other aliens who are deemed to be of the same status (*assimilés*) as French citizens. To all these French Law applies, and they are subject to the jurisdiction of French courts. This body of law is called *la justice française*.

The native tribes are not subject to French Law but to their own native customary laws, or to Moslem Law, and to the Indigénat. This is a special disciplinary régime, borrowed from Algeria, which enables the Governor-General by *arrêté* to authorize officers of the Executive to inflict small fines or confine offenders for breach of regulations set out in the *arrêté*, without recourse to the courts. The object is to ensure a flexible and speedy method of repressing acts or omissions considered to be dangerous to law and order (*l'ordre public*), e.g. breaches of regulations for compulsory planting of foodstuffs. Certain classes of natives are exempted from the Indigénat, e.g. government servants and some individuals, but, in the latter case, the exemption is revocable. The infliction of the penalty does not count as a conviction. Redress is obtainable by appeal to a superior officer or to the Governor, who can annul or confirm or even augment the penalty. All laws affecting natives, and the native courts, are known as a whole as *la justice indigène*.

Native Customary Law, i.e. the various systems of tribal law, applies in all civil matters and criminal cases where the parties are natives. Naturally, customs which are considered by the government to be immoral or too barbarous are excluded, e.g. slave-dealing and the pawning of persons. Natives are not subject to French Law, but can by consent bring their civil cases before a French court. A distinction must be drawn, however, between the right which natives have to bring their suits before French courts and the right of option in favour of French Law. When the latter option has not been exercised, the French court must continue to apply Native Law. In a French court Native Law must be proved and found as a fact. A decree of 1927 authorizes natives to carry their suits before French courts, without specifying which law will apply, but previous decrees of 1911 and 1913 provide for the application of native custom. If one native were to bring another before a French court and the court were to claim jurisdiction, the defendant or accused would have a good preliminary objection (*in limine litis*). Cases to which both natives and Europeans are parties are tried by French courts, which can apply French or Native Law, as is just.

At the risk of reiteration, it must be repeated that Native Law is not one body but varies with the tribes, although there are certain general principles which are found, e.g., among the Bantu tribes. Native Law being the legal aspect of tribal life, some idea of its scope may be gathered from the section on 'Way of Life' (p. 215 et seq.). The Native Law of French Equatorial Africa has not been codified, but monographs have been written on certain tribes.

Native Customary Law does not draw the same sharp distinction between Civil Law and Criminal Law as do European courts, and it is sometimes difficult to decide whether a Native Court is sitting on its civil or on its criminal side. As in all countries, however, there are acts and omissions which are considered criminal, and natives charged with these are judged according to Native Law. The enforcement of barbarous customs, however, is prohibited, and this is ensured, not only by statute, but also by the composition of the Native Court, which is presided over by a French official (or sometimes, in the case of an inferior court, by a French official or African 'notable') assisted by two natives. The foundation of the whole Native Court system is the rule that no one can go to a civil court without first taking his complaint to a chief, with a view to arbitration. This procedure is taken from the French Law of Divorce (which is also the law of Mauritius and Seychelles), under which the judge must inter-

view the parties with a view to effecting a reconciliation. The procedure before the chief, and in the civil and criminal Native Courts, is similar generally to that in force in the French Cameroons, and is as follows.

In civil cases the plaintiff files, at the bureau of the subdivision, a citation, summoning the defendant and his witnesses to the court of the defendant's place of residence. If the defendant does not come, he is arrested. Both parties appear before a native chief, specially charged with the duty of settling the case. The chief summons all persons interested. For instance, in the case of a deserting wife, the husband, the wife, her father or brother, and the new 'husband' would be summoned. Generally, the case is settled. The terms of settlement are reduced to writing and recorded and copies are given to the parties. Only when the parties cannot agree does the case go forward to the native tribunal.

Criminal cases start with a complaint, or else the president (i.e. the French officer in charge of the district) hears of the case and has the suspect arrested. The accused is interrogated within twenty-four hours of his arrival at the seat of the court. When he has been taken *in flagrante delicto* and the case is ready, it is heard forthwith: otherwise, a short remand is made. Sentences of over three years' imprisonment are reviewed by a *Chambre d'homologation*.

There are no Moslem states in French Equatorial Africa, but there are areas inhabited by Moslems, whose personal law is Islamic Law or a mixture of Islamic Law and Negro Customary Law. In these areas Moslem Land Law is applied, but there remains a strong residuum of the customary native tenures. The code in force is the Malikite, i.e. the doctrine of the school of Malik, one of the four great Moslem Doctors of Law. Moslems derive their law from the Koran, but they have other law books. One which is used in Africa is the Moukhtacar of Sidi Khelil, a collection and abridgement of law after the Malikite school.

Moslem Law recognizes private ownership of movables and their distribution in equal shares on the death of the owner. Under Malikite Law, women may hold and devise and bequeath real and personal property and contract debts.

The French Cameroons is not a colony, but a territory administered by France under mandate from the League of Nations. The mandate provides that it is to be administered as an integral part of the French Empire, and, generally speaking, its laws are similar to those of French Equatorial Africa.

4. THE JUDICIARY

A. *Justice Française*I. *French Equatorial Africa*

The following courts are constituted by a decree of 30 June 1935:

1. A Court of Appeal at Brazzaville. This court now also deals with appeals from the Cameroons, and from its decisions there lay under certain conditions a further appeal to the *Cour de Cassation* at Paris. The court consists of a president, three counsellors, and the procureur-général.
2. A Criminal Court, sitting normally at Brazzaville, but with power to sit at the headquarters of any territory if deemed advisable. At Brazzaville it consists of the Court of Appeal augmented by two assessors. When it sits elsewhere, the president can nominate a magistrate to take his place, and various other arrangements can be made to avoid transporting the whole court to a possibly distant venue.
3. Tribunals of First Instance sitting at Brazzaville, Libreville, and Bangui, consisting of a judge-president and a *procureur de la République*.
4. Justices of the Peace with extended jurisdiction (*justices de paix à compétence étendue*) sit at Pointe Noire, Fort Lamy, and Port Gentil. These courts should be presided over by members of the Colonial Legal Services (*Magistrats de carrière*).
5. Justices of the Peace with ordinary jurisdiction hold courts which are set up, usually at the headquarters of each département, by arrêté of the Governor-General on the advice of the procureur-général, head of the Legal Service.

With the exception of the Criminal Court, all the above have jurisdiction of varying degrees both in civil and criminal matters, and before all of which barristers may practise. The aim is that all courts should be staffed entirely by members of the Colonial magistrature independent of the executive. In practice this ideal has proved impossible, and, as in many British colonies, administrative officers are frequently found on the bench in the lower courts.

The above courts also have jurisdiction where one party is a citizen and the other an *indigène*.

II. *The French Cameroons*

The Presidential decree of 30 June 1935, organizing the Courts of French Equatorial Africa, was applied to the Cameroons by arrêté

JUDICIARY

A. JUSTICE FRANÇAISE

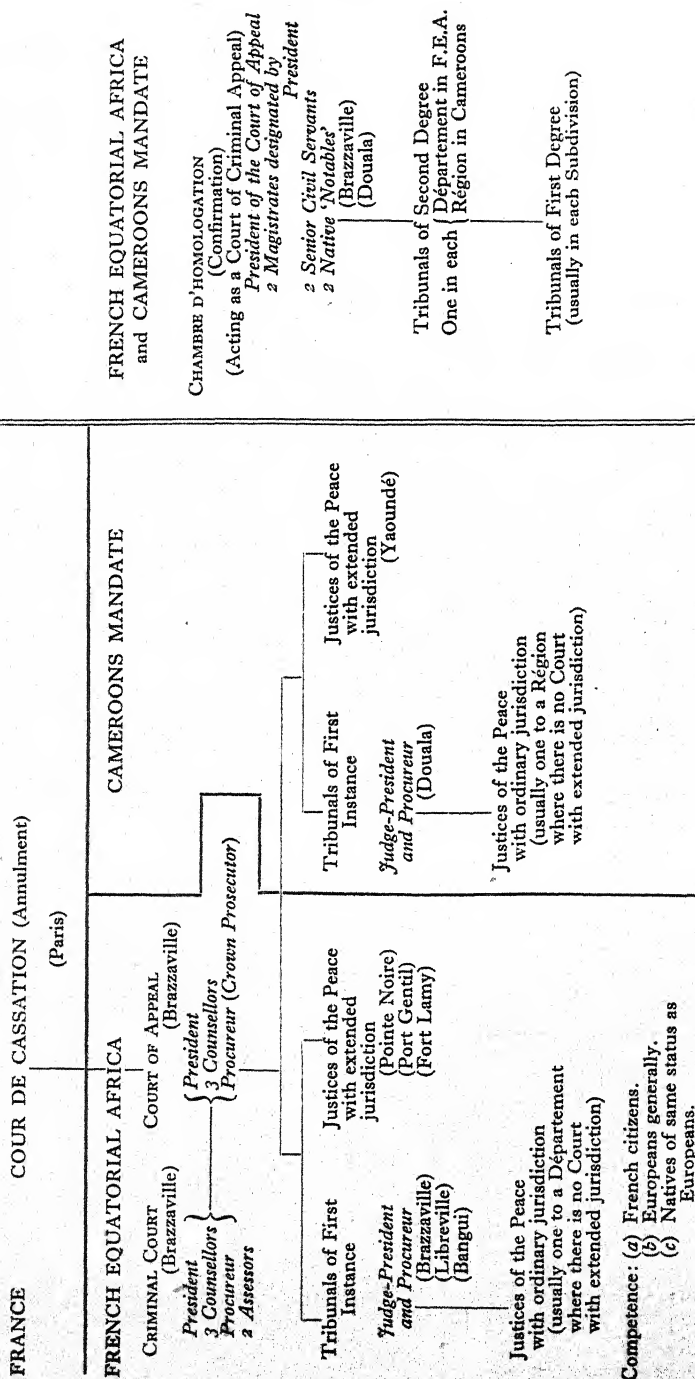


FIG. 69

of 2 February 1936. By this the separate Court of Appeal for the Cameroons was abolished, and appeals from the Cameroons now go to the Court of Appeal at Brazzaville.

The local tribunals of the Justice Française, in the Cameroons, all of which follow the model of French Equatorial Africa, are:

1. A Criminal Court sitting normally at Douala, but which may sit elsewhere if necessary.
2. A Tribunal of First Instance at Douala.
3. Justice of the Peace with extended jurisdiction at Yaoundé.
4. Justices of the Peace with ordinary jurisdiction, in the other regions.

B. *Justice Indigène*

The term by which the tribunals are known (*Tribunaux indigènes*) may be misleading to English readers. In the British colonies the term 'native tribunal' denotes a court constituted by a tribal chief, elders, and councillors formed in accordance with native customary law. In French Equatorial Africa and the Cameroons, however, the 'tribunal indigène' is presided over by a French official, and has no connexion with tribal organization.

I. *French Equatorial Africa*

Justice indigène now rests on a decree of 29 May 1936, repealing and largely re-enacting previous provisions on the subject.

The tribunaux indigènes are as follows:

1. Tribunals of the First Degree sit in such places as may be determined by the Governor-General. Normally one tribunal sits in each subdivision, and is composed of a French official with two native assessors. In civil matters these tribunals have unlimited jurisdiction, and act entirely on native customary law. They have minor criminal jurisdiction, serious charges being reserved for the tribunals of the second degree.
2. Tribunals of the Second Degree exist in each département. They are presided over by the chef de département with two native assessors. The latter must be consulted and their findings recorded. In civil matters these tribunals hear appeals from those of the first degree. Their criminal jurisdiction covers all serious crimes, and their penal powers include fines, imprisonment, banishment, and death.
3. Heavy sentences, including those of more than three years' im-

prisonment, come up automatically for review by the *Chambre d'homologation* at Brazzaville. Certain lesser sentences can be brought before it at the instance of the government or the accused.

The chamber is composed of the President of the Court of Appeal, two magistrates designated by him, two senior civil servants, and two native notables. The consideration of the case takes place in public, and, though the accused is not present, his case may be argued by counsel.

II. *French Cameroons*

Justice indigène rests upon a decree of 31 July 1927. The organization is exactly the same as in French Equatorial Africa. There are about fifty tribunals of the first degree with a tribunal of the second degree for each region, and a *Chambre d'homologation* at Douala.

5. NATIVE ORGANIZATION

Differences between British and French Systems

In almost all British colonies in tropical Africa chiefs of all degrees are appointed by their people and installed by native customary law, government retaining only a right of approval, and not that in all cases. Similarly they can be deposed by their people in accordance with the same customary law, though government has put an end to the cruder methods of dismissal. Resting thus on old tradition, they both carry weight with their people and can represent their opinions in dealings with government, but on the other hand may prove to be more independent of government control, and more heedless of its wishes, than chiefs in French Equatorial Africa and the Cameroons, who owe their appointment and their continuance in office solely to government. Which system is most beneficial to the country in the long run is not argued here, but before proceeding to discuss the appointment and functions of chiefs, it is well to point out the difference.

A. *French Equatorial Africa*

Native organization as it at present exists (except in the sultanates of Ubangi-Shari and Chad) rests on an *arrêté* of the Governor-General of 28 December 1936. There are three grades of chiefs, given below in ascending order, and chiefs of all and every class can be tried, suspended, or dismissed by government, and by government alone.

a. *Chef de Village*

Chef de village, appointed by the chef de département after consultation with the principal people of the village assembled in *commission villageoise*.

He is responsible for the collection of the head-tax, maintenance of native roads, observance of sanitary regulations, and generally for the peace and good order of his village. He has the power of arrest, but has no power to try the offender, whom he must hand over, as soon as may be, to his superior chief or the local authorities. He is remunerated by a percentage of the head-tax he collects.

In urban areas the village chief is replaced by the *chef de quartier*.

b. *Chef de Terre*

The *chef de terre*, *canton*, or *tribu* is the head of a group of villages united by tradition, or, if no such tradition exists, by administrative convenience. In either case the group is formally created by order of the chef de territoire. These chiefs are recruited if possible from among the old families who would traditionally hold such posts; or, failing these, are chosen, in descending order, from native notables, secretaries to chiefs, old soldiers, and superior government clerks. Literacy is a desirable qualification. Their functions are chiefly to supervise the work of the village chiefs and to act as liaison officers between them and the local authorities. They allot the prestation (forced) labour among their villages, and keep the registers of inhabitants and of births, marriages, and deaths. They are remunerated in some cases by a fixed salary, in others by a percentage of the taxes collected in their groups. The more important of them are provided with secretaries at government expense. They are assisted by the chiefs of their villages as a council (*commission cantonale*).

c. *Chef de Province*

The cantons and tribes are again grouped into provinces, at whose head are the *chefs de province*, appointed from among the old families who would traditionally hold such posts, or, failing such, from among the chefs de canton and the local notables in this sequence. They in their turn supervise the cantonal chiefs, whose assistance they have as a council (*commission provinciale*) and are remunerated by a direct government salary varying with the importance of the chief.

From the provisions of this arrêté, the sultanates of Ubangi-Shari

and Chad are expressly excluded, and no other legislation referring to them can be traced. Succession to them still rests presumably on native customary law, but government keeps a very tight hold on them and would not hesitate to dismiss any sultan for unsatisfactory conduct. As they came under French control, whether by conquest or otherwise, they were shorn of most of their powers.

B. The Cameroons

The organization, which rests on an *arrêté* of 4 February 1933, is exactly the same as in French Equatorial Africa, but the three classes of chiefs are known as *chefs de village*, *chefs de groupement*, and *chefs supérieurs ou de région*.

6. HEALTH SERVICES

The General Inspectorate of the Health Service, under the direction of a Medical Inspector-General of Colonial Troops, supervises, from Paris, all health organizations in French colonial territories. He is assisted by a Supreme Health Council for the Colonies. In Brazzaville there is a Medical Inspector of the Colonial Medical Corps attached to the Governor-General. Under the authority of the Medical Inspector there is a chief of the Public Health Service in each of the territories, Moyen-Congo, Gabon, Ubangi-Shari, and Chad. There is a Health Inspector in the Cameroons. A supreme Health and Sanitation Board at Douala considers measures of a general nature applying to the Cameroons as a whole. The health personnel in 1936 included:

	<i>French Equatorial Africa</i>	<i>Cameroons</i>
Doctors	80	46
Chemists	5	2
Midwives, European	2	2
" Native	2	2
Nurses, European, female	7	2
" " male	46	20
Native staff	644	667

There were five major government hospitals in French Equatorial Africa, at Brazzaville, Libreville, Fort Lamy, Bangui, and Abeché, 52 minor hospitals and dispensaries, and 46 sanitary posts. In the Cameroons there were 27 hospitals and medical centres, the two largest being at Douala and Yaoundé, 22 infant welfare centres, and 30 leper institutions.

The medical scientific institutes include the Pasteur Institute of Brazzaville, with attached laboratories at Libreville and Fort Archambault; a chemical laboratory at Brazzaville; a laboratory at Yaoundé, and another at Douala.

In Gabon a maritime health service functions at Libreville, Port Gentil, and Pointe Noire. There is a quarantine station at Libreville, and infected or suspected vessels arriving at either of the other two ports are sent to Libreville to be dealt with. Access by sea to the Moyen Congo is gained either by Matadi in the Belgian Congo (health station at Banana) or via Pointe Noire and thence by rail to Brazzaville. At Douala there is a Medical Inspector of Shipping with subordinate staff. The port also possesses a Clayton disinfecting apparatus.

Many other facts concerning medical organization are given in Chapter VI, from which they can hardly be divorced.

7. FINANCE SERVICES

Financial services are not organized in quite the same way as the executive. The decree of 31 December 1912 lays down the principle that *Trésoriers payeurs* or *Trésoriers* (as the chief financial officers in lesser colonies are called) shall be nominated by the Minister of Finance. The distribution of the Senior Financial Staff among the various colonies as well as their salaries is the joint business of the Ministers of Finance and the Colonies, but the posting of the officers serving in any given colony and the appointment of the lower grade of financial officers are matters for the local Governor or Governor-General. He too is the *ordonnateur* of the local budget, that is to say he is responsible for its preparation and execution.

On the four separate colonies of French Equatorial Africa being fused into a single organization with a single budget, the four separate treasuries were suppressed, and by a decree of 3 November 1934 a single Treasurer (*Trésorier-payeur*) and Director of Finance was established at Brazzaville at the head of the financial organization of the colony. Sub-treasuries (*paieries*) were established at Libreville, Port Gentil, Pointe Noire, Bangui, Fort Archambault, and Fort Lamy, and were promised in the future for Bambari, Abéché, and Lambaréné. Forty-six minor treasury agencies were to be set up at various stations in the colony.

By the decree of 23 March 1921 the French Cameroons obtained fiscal autonomy; till then its finances had been administered by the Gabon Treasury.

8. LICENCES FOR EXPLOITING NATURAL RESOURCES

(a) Mining

French Equatorial Africa

Government regulation of mining has been made by decrees of 6 July 1899, 8 July 1926, 31 July 1927, and 20 October 1933. By the third of these decrees, promulgated by an *arrêté* of 20 September 1927, the Governor-General is authorized, subject to rights already existing, to close such areas or 'zones' as he may think fit to general prospecting for and working of minerals. In these zones exclusive rights may be granted to companies who are willing and able to expend capital on development. Such grants are made by means of a presidential decree on the submission of the Governor-General, and naturally contain provisions as to royalties; these, however, may not exceed 15 per cent. of the profits.

Within these zones exclusive prospecting licences can be granted for 2 years, renewable, if desired, for two further periods of the same length, and definite mining concessions may be granted for periods up to 75 years. By 1930 twenty-one such zones had been created. Rights had been granted in them to three large companies, who had undertaken to spend 17,500,000 francs within 7 years in prospecting and developing.

By an *arrêté* of 4 May 1929 the right of prospecting for petroleum and other mineral oils was reserved for the government of the colony. In 1931 the *Office Nationale des Combustibles Liquides* in Paris made a grant of 600,000 francs for this purpose, and a careful survey of the districts round Fernan Vaz and Pointe Noire was made under the supervision of Professor Jung of Strasburg. In 1932 a further sum of 1,500,000 francs was allocated to enable this work to continue. A decree of 1934 created a partnership between the Colony, the Office mentioned, and the *Compagnie Française des Pétroles*. This partnership has the exclusive right of prospecting for and working petroleum throughout the colony. Though favourable reports have been received, particularly from Pombou, no working appears to have taken place up to the outbreak of war.

Offices of the Mines Department have been set up at Brazzaville and at Bangui. Mining regulations are contained in the decree of 13 October 1933, and the fees and duties payable are set out in an *arrêté* of 30 December 1933.

On 1 November 1930 the list of permits was as follows:

Colony	No. of persons authorized	Permits to prospect	Concessions
Gabon	10	28	..
Moyen Congo	116	149	1
Ubangi-Shari	36	1,110	2
Chad	5	10	..

There were also twenty-three *permis d'exploitation* granted under the 1899 régime.

Cameroons

The decrees of 20 May 1928 and of 5 February 1935, brought into force by the *arrêté* of 15 October 1935, created, in addition to *concessions minières*, *permis d'exploration* and *permis d'exploitation*. A *permis d'exploration* or prospecting licence gives to its holder the right to obtain within a given area as many exclusive *permis de recherches* as he wishes, on condition that he spends at least 50,000 francs. Such permits are valid for 3 years. A *permis d'exploitation* may be granted to any holder of a *permis de recherches* who satisfies the authorities that he has, by regular prospecting, discovered in his area minerals in working quantities. This gives him the exclusive right for 4 years of working the minerals in his area. A *permis d'exploitation* may be renewed for four further periods of 4 years, making 20 in all. Four Europeans are on the staff of the Mines Department, the headquarters of which is at Yaoundé.

(b) Timber

From 1929 to 1936 there were only six forestry officers in Gabon and none in Moyen Congo. An *arrêté* of 15 May 1936 reorganized the service; it provided for the division of the colony into seven forestry *arrondissements*; each has its own officer, who is responsible to the *Chef du Service Forestier* at Brazzaville. This reorganization was partly due to the first faint consciousness of the existence of a deforestation problem. The forestry service in the Cameroons comprises six European officers with twenty-seven native assistants, and the country is divided into the three districts of Nkongsamba, Yaoundé, and Garoua.

Four types of permit to cut timber are granted:

- (1) *Le Chantier*. This is granted to natives cutting small areas not exceeding 1,000 hectares (2,500 acres).

- (2) *La Coupe Ordinaire*. This is granted to individuals or to companies for areas up to 2,500 hectares (6,000 acres).
- (3) *La Coupe Industrielle*. This is for areas up to 40,000 hectares (156 square miles).
- (4) Concessions granted by presidential decree for areas of more than 40,000 hectares in French Equatorial Africa, or for more than 10,000 hectares in the Cameroons.

All these permits authorize timber cutting only, and give no right to the soil or any other product thereof. Whatever form of permit is given, the natives' rights of cutting wood for their usual purposes and their rights of farming and pasturage must be respected.

9. LABOUR

The mention of compulsory labour sounds strange to modern English ideas, but it is worth pointing out that the old Common Law obligation laid on every Englishman to work for 6 days each year on his parish roads was only formally abolished in 1835, and lasted in Scotland till 1883. The system of prestation is still nominally in force in France.

Prestations

Throughout tropical Africa native custom requires that work for the benefit of the community should be performed by its members free, and it cannot be denied that governments of all nations have fully exploited this principle in the past—especially in the case of railway, harbour, and road construction. As at present regulated and limited, however, there is little to criticize in the system of prestations in French possessions.

A. French Equatorial Africa

In French Equatorial Africa forced labour rests on an arrêté of 28 December 1936. Every year a list of local public works to be fulfilled is drawn up by each chef de département after consulting the local chiefs and notables. Such works include construction and maintenance of public buildings, roads, bridges, telegraph lines, aerodromes, sanitary works, and clearing of rivers. Lists of those liable are also drawn up, excluding the infirm, women and children, government officials, chiefs, and soldiers. The maximum number of days to be worked each year in any part is fixed by the Governor-General, but may in no case exceed 12, and the actual number of

days worked in any part is fixed locally in accordance with the programme and the number of persons available. No man can be compelled to work at a greater distance than 10 kilometres ($6\frac{1}{4}$ miles) from his home except in the case of a sudden calamity. Generally speaking, all labour can be redeemed by a fixed money payment, and must be so redeemed by Europeans, persons in regular private employment, and certain others. For 1938, 10 days was fixed as a maximum number to be worked throughout the colony, with a payment in lieu thereof of 1-5 francs according to the district. No statistics of work done under this system are available for French Equatorial Africa.

B. *The Cameroons*

In the Cameroons a similar system of prestations rests on an arrêté of 24 November 1936, under which 10 days' labour is the maximum that can be required from any person. In 1938 some 3,475,000 man-days were worked, of which 1,634,000 were on the roads, 863,000 on construction and repair of public buildings, 568,000 on health services, and 179,000 on aviation services.

Private Employment

In earlier periods considerable government aid, sometimes of a dubious nature, was given to private employers in recruiting labour, but now both in French Equatorial Africa and in the Cameroons employment of labour other than by the day is carefully regulated. No person may be engaged for work outside his own subdivision without a permit and a written contract approved and countersigned by a government officer. Recruits must undergo a medical examination, and there are stringent provisions, enforced by inspection, regarding housing, feeding, medical attention, and general conditions of employment. No figures are available for Equatorial Africa, but in the Cameroons in 1938 there were only 4,264 natives working on contract, while 42,000 were known to be working as day-labourers. As elsewhere in tropical Africa, day labour is the more popular.

The system in French Equatorial Africa rests on an arrêté of 21 December 1935, and in the Cameroons on an arrêté of 14 September 1938, both of which put into force presidential decrees.

10. LAND TENURE

Native Tenures

As in most of tropical Africa, so in the territories with which this book deals, native land tenure is collective, not individual. The

individual member of the tribe, however, has ample rights of building, cultivation, and collection of natural produce on complying with tribal custom as to tribute, whether in kind or, in later stages of civilization, in money. The same facilities are frequently extended to the stranger, but usually and naturally on a higher scale of payment.

In Chad and in the Moslem areas of Ubangi-Shari native tenure is ordinarily regulated by Moslem law. Such tenure has received no preferential treatment from the French government, and is nowhere specifically mentioned in their legislation. Nor is there any special legislation dealing with the Moslem Wakf, or Habu, charities—i.e. the devotion of land or its income to religious or charitable purposes. This is intelligible, for F. H. Ruxton, in his *Maliki Law*, states that Habus are scarcely known in West Africa. In what follows, therefore, references to native rights in land will be understood to include those arising under Moslem law.

A. French Equatorial Africa

By many treaties of the early days of occupation the French undertook to respect the rights of the natives in the land. These rights, as has been shown, were of a rather vague nature, and French promises took for granted that the State is the ultimate owner of all land, and can freely dispose of such parts of it as are not in visible permanent occupation of private persons.

Concessions Régime

The object of the following short excursion into the history of concessions in French Equatorial Africa is simply to show how the present position of tenure of land has come about.

In a decree dated 28 March 1899, the State is declared to be the owner of all lands *vacantes et sans maître*. Even before this, indeed starting from 1890, the State had asserted its ownership by the grant of large concessions for exploitation of all sorts, and after its publication there was a veritable rush to obtain concessions.

A *Commission des concessions coloniales* (still in existence) was set up to advise on terms on which concessions should be granted. As a result concessionaires obtained exclusive rights for 30 years of agricultural, forest, and industrial exploitation, at the end of which period they were to acquire absolute ownership of such lands as had been properly developed. In return concessionaires paid small rents, 15 per cent. of their annual revenue, and undertook to help in the maintenance of police, customs, and military service within their areas.

By the end of the century some 874,000 square kilometres (roughly 327,000 square miles)—an area considerably larger than the whole of France—was in the hands of companies exercising an almost absolute sovereignty. Two-thirds of the present Gabon, Moyen Congo, and Ubangi-Shari were so disposed of. There was a general provision that concessionaires should not exercise their rights in native villages or in lands used by the natives. Unfortunately a judgement of the court at Loango in September 1900 laid it down that, until native reserves were delimited (which delimitation never took place), all produce from a conceded area belonged to the company in question and could only be sold by it. This led to trouble with British companies, who had continued to purchase produce direct from the natives, relying on the free-trade provisions of the Berlin Act of 1885. As a result of diplomatic negotiation the British traders received, as compensation, an area of 300 square kilometres and one million and a half francs in 1906-7.

Not only were the rights conferred upon the companies very wide, but government, partly owing to a shortage of staff, and partly owing to a desire to get the country developed by hook or by crook, practically abdicated its functions within the conceded areas, with results on native life and welfare in no way surpassed on the Belgian side of the Congo. Notwithstanding their ample powers the companies did not prosper. Their programmes had been too ambitious, and the fall in the price of rubber proved a severe handicap. Many of them went bankrupt, whereupon their concessions lapsed. The condition of the natives roused public opinion in France, which insisted on radical reforms in such concessions as survived, and the owners, being in no way prosperous, were found willing to compromise by reducing the scale and area of their operations. For instance, twenty companies agreed to forgo future rights over 300,500 square kilometres, when these had been developed in accordance with their obligations, in exchange for 3,800 square kilometres in immediate full proprietorship. Such reforms took much negotiation with the surviving companies, and the results only came into effect gradually, but by the end of 1929, both in what was left of the old concessions and in the few new ones, native rights were adequately guarded both in theory and practice.

Present Law of Concessions

At present concessions up to 10,000 hectares (in round figures 40 square miles) can be granted by the Governor-General after consulting the Conseil d'administration. Concessions of larger areas are

granted by decree after consulting the Commission des concessions coloniales. In every case, however, a *concession provisoire* must precede a *concession définitive*, and the latter is not granted unless development has been thorough within the period of occupation granted under the former. If the whole has not been satisfactorily developed a concession definitive may be granted in respect of such areas as have been so developed. Such a concession needs registration (*immatriculation*) to perfect the legal title. Usually, before a concession definitive is granted, lands on which the natives have customary rights are delimited and mentioned in the final grant. These can only be used by the concessionaires with the consent of the government, and subject to payment of compensation assessed by it.

The Governor-General may also grant mining concessions for terms up to 75 years in certain reserved zones.

Registration of Title

Registration of title (*immatriculation*) on the Torrens system was introduced nominally in French Equatorial Africa in 1899. At first it was open to Europeans only, but a decree of 1920 opened it to natives holding with an individual title. The effect of immatriculation (which of course is granted only after public notice and full inquiry) is the establishment of an indefeasible title to a property accurately surveyed and properly marked. The title is guaranteed and becomes thenceforward the starting-point of all property rights. Persons whose rights are affected by immatriculation can only obtain damages in case of fraud, and then only by way of personal action. In the case of native owners, immatriculation brings the land under French law for the purposes of transfer, though it remains subject to the native law of succession. To perfect a title to a concession, or to a purchase from natives, immatriculation is essential; otherwise it is optional. It is, however, more than doubtful if the survey measurement proper to a Torrens system has ever been carried out.

B. The French Cameroons

The land system in force in the Cameroons is more favourable to the native than that in Equatorial Africa.

Its main bases are:

- (i) A decree of 11 August 1920, put into force by arrêté of 15 September 1921, as modified by
- (ii) A decree of 12 January 1938, put into force by arrêté of 21 October 1938.

Four Categories of Land

The effect of these decrees is that land in the Cameroons is divided into the four following categories:

1. Lands held under a regular title whether by registration in the German *Grundbuch* (which in 1920 covered the great majority of lands held by private individuals) or otherwise. These, provided they were not held by ex-enemies on the date of the *arrêté*, can be alienated freely, whether belonging to Europeans or natives.
2. Lands *owned* by natives, whether by individual or collective title, under native customary law, but for which no written title exists. These can be alienated, but only after an inquiry held locally at which an *acte de notoriété*, specifying the extent and ownership of the land and witnessed by the chief and elders, is drawn up. If the local administrative officer recommends the sale, the Commissioner may allow it.
3. Lands over which natives have rights of user, but which cannot be said to fall within the previous category. Such lands are commonly known as native reserves, and from time to time are declared by *arrêté* legally so to be, irrespective of whether they lie in a concession or not. Naturally, not being the property of the natives, they cannot be alienated by them.
4. The *Domaine privé*, consisting of
 - (a) Government land held under a regular title whether by sale or otherwise.
 - (b) Lands which have not been used or occupied by their native owners for 10 years and upwards.
 - (c) Lands *vacantes et sans maître*.

The last two categories are declared to be the property of the Territory of the Cameroons.

Concessions

Concessions may be granted over land falling within the last two categories for mining, agriculture, or other development, subject in the case of lands falling within category 3 to compensation to the natives, should their rights be interfered with. In contrast to the Governor-General of Equatorial Africa, the Commissioner can only grant concessions up to 1,000 hectares (roughly 4 square miles), grants of a larger area being made by decree. The procedure is the same as in Equatorial Africa, but definite evidence that capital is

available for development is required, and development must proceed steadily, and at a reasonable pace, before a 'concession definitive' is granted.

By 31 January 1938, 423 *concessions rurales* (i.e. outside a town boundary and therefore presumably for agricultural or similar development), covering an area of 38,668 hectares (150 square miles), had been granted with a provisional title (*concessions provisoires*), while 101 with an area of 28,430 hectares (111 square miles) had been granted with a final title (*concessions définitives*).

Native Reserves

The policy of setting apart native reserves has been followed either on the granting of a concession or in areas which are likely to be exploited by Europeans in the near future. Full figures are not available, but in recent years a block of 50,000 hectares (roughly 200 square miles) has been reserved near Nkongsamba in the region of Moungo, where a railway concession has been granted, together with four more blocks in the same region totalling 30,000 hectares. Again 535,000 hectares (2,050 square miles) have been reserved in the valley of the Noun, and 28,000 hectares in the region of Sanaga-Maritime. This shows that government pays careful regard to native interests, and no doubt further native reserves will be created should European development penetrate north.

Registration of Title

The decree of 24 July 1932, establishing a system of immatriculation, was promulgated in 1934. It is essential to complete a title to a concession or to land purchased from persons holding it by native customary law or under the German system. Immatriculation has the same effect and is subject to the same limitations as in Equatorial Africa. Up to the end of 1935 only 102 properties had been registered, of which 28 were for urban plots, while 74 were for rural lands, the total area being only some 1,100 hectares or four and a half square miles.

A simpler method of registration for lands owned by natives was introduced by the decree of 21 July 1932, repealing and re-enacting with modifications an earlier decree of 20 August 1927. Under its provisions natives, holding either individually or collectively, may apply to the chef de région, who, after due notice and public inquiry into opposing claims, will issue a *livret foncier* (certificate of title). Though this does not give the full guarantee provided by immatriculation, it at least gives a proprietary title, which is valid against anyone

who cannot show a better. The land remains in every respect subject to native customary law, although it cannot be alienated without government sanction. Some advantage has been taken of this procedure in the urban centres—notably Douala—where the idea of individual ownership is growing, but generally, and not unnaturally, it does not appeal to the native. Up to the end of 1938, only some 8 square miles had been protected by livrets fonciers.

II. EDUCATION

A. *French Equatorial Africa*

The staff of the Education Department in 1937 consisted of 56 Europeans and 151 Africans. The amount voted for 1938 was 4,723,875 francs (slightly over £32,000) compared with 2,909,480 francs for the previous year.

The general principles of public education are:

- (a) To give to as large a number of children as possible a working knowledge of French, and to send the bulk of them back home before they have acquired a distaste for bush life.
- (b) To provide higher education only for those who show prospects of profiting by it.

There are three classes of government schools:

- (1) *Écoles de village*, of which there are about seventy. These are for children of 8–11 under an African headmaster. The bulk of the pupils stay at school only for a year to learn French. The others have a year or two more in which to learn the three R's and the elements of hygiene. The term *école de village* is somewhat misleading as such schools exist only in some of the more important towns.
- (2) *Écoles régionales* or *urbaines* are established in the headquarters of each territory and at a few other places. They are mainly boarding schools under a European headmaster, and aim at fitting their pupils for clerical duties. Eight of these schools have a *section professionnelle* giving a training for artisans, and all indeed give a certain amount of agricultural and manual instruction.
- (3) *École primaire supérieure*. The only one at present existing is the École Édouard Renard at Brazzaville. This gives a three years' higher literary and vocational course, and has a side for

the training of teachers. It was intended to open a medical school in 1939 for the training of African doctors, of whom there have been none up to date.

In addition to the above, there are three elementary schools for European children.

Primary education in government schools is free. In 1937 there were 7,534 pupils in the government schools, of whom only 62 were girls.

Private schools require government sanction, and, as might be expected, all belong to missionary bodies. On condition of using French as the medium of instruction and submitting to government inspection these schools receive a grant. In 1937 there were 92 Catholic schools with 9,568 pupils, and 40 Protestant schools with 2,346 pupils. There are Moslem schools in Ubangi-Shari and Chad, the most important being at Bangui, Fort Sibut, Fort Crampel, Bozoum, Birao, Fort Lamy, and Abéché.

B. *The French Cameroons*

Education is on the same lines as in Equatorial Africa. There are 70 village schools with 6,600 pupils, of whom 420 are girls. There are 10 regional schools with 3,500 pupils, 250 being girls. There is a higher school at Yaoundé, whose 91 pupils were being trained for clerical careers in 1938. Recently there have been started, also at Yaoundé, an agricultural school, and trade schools at Garoua and Ebolova. There is also an *École des aides de santé* at Ayos where a three years' course trains nurses, dispensers, and other health workers. It was proposed to open six special schools for the sons of chiefs, and one has already started at Garoua. Meanwhile several ordinary schools make special provision for such pupils. The above are all government institutions.

Grant-aided mission schools of various denominations have another 11,000 pupils and received grants of 116,000 francs (about £1,100) in 1937. These must use French as the medium of instruction, conform to an approved curriculum, and have certified head teachers.

There are also 2,800 schools belonging to various missions, giving instruction in the vernacular to 92,000 pupils. These receive no government aid.

The staff of the Education Department consisted of 31 Europeans and 181 natives in 1938, and the education vote for 1939 amounted to 3,277,900 francs, or roughly £18,600.

12. PUBLIC WORKS ORGANIZATION

A. *French Equatorial Africa*

The present organization rests on an arrêté of 28 November 1937.

Under the Inspector-General of Public Works there are three arrondissements or Public Works Provinces, Gabon, Moyen Congo, and Ubangi-Shari-Chad, each under a chief engineer in close touch with the local administration. A few of the more important departments have their own resident engineers, but elsewhere work or inspection is carried out from provincial headquarters as required. The arrêté contemplates a staff of twenty-four senior engineers for this provincial organization.

The department is responsible for main roads, public buildings, water and electricity supplies, maintenance of waterways, and, unless otherwise provided for, aerodromes.

It also manages such road or water transport services as are maintained by government, whilst many others are in private hands.

The Inspector-General has a general supervision of the railways.

B. *The Cameroons*

The organization of Public Works Department rests on an arrêté of 5 August 1937. The services controlled by the department are as in French Equatorial Africa. The total European staff for 1938 was 176. Headquarters and administration is at Douala, and the country is divided into two territorial arrondissements with headquarters at Douala and Yaoundé, the latter having a substation at Garoua. The railway has its own *arrondissement des chemins de fer*.

13. PROVIDENT SOCIETIES

Policy and practice in French Equatorial Africa and the mandated Cameroons follow closely upon the same lines, but the Cameroons have to report, at length, to the League of Nations, and these reports, much fuller than those of French Equatorial, supply the clue to the activities of Provident Societies.

In the Cameroons, provident societies were set up by a decree of 7 June 1937, promulgated by an arrêté of 7 July 1937, and by the end of 1938 seventeen such societies were in being. Their objects were declared to be the development of agriculture, stock-rearing, and fishing, and the improvement of the harvesting, preparation, storage, and sale of products.

The societies can assist needy members by making temporary loans in cash or in kind. Such loans are also made to enable members to maintain, develop, and improve their farms, implements, or livestock. The societies can fix prices with other societies or with other authorized organizations, on condition that these prices only apply to members of a provident society. Provident societies may combine to institute one central fund, administered by an incorporated body whose organization and powers will be fixed by the order in council of the *Commissaire de la République*. They can also, on the same conditions, be grouped into unions. One society only can be set up in each administrative subdivision. It must be under the supervision of a European, and its headquarters must be at the administrative capital, though it can be divided into subsections.

Membership of a society is confined to cultivators and stock-raisers subject to native law. Membership is compulsory on all such persons. Subscriptions are collected and repayment of loans recovered as if they were taxes. Lawsuits between a provident society and its members must be brought before the native courts. Seeds advanced to a member are not transferable by him to another member; the penalty for breaking this rule is a fine of from 50 to 500 francs or imprisonment for from six days to one month.

Each society is administered by a council composed of native members delegated by the sections. The *chef de région* is president of this council. He is assisted by a vice-president chosen by the Commissioner of the Republic, on the advice of the *chef de région*, from a list of three members presented by the council. All members of a council are unpaid. A secretary-general is added to each council, with purely consultative powers; he is a public official chosen by the Commissioner on the proposal of the *chef de région*; and he receives an allowance from the society's funds. The society is represented in each section by a local commission, composed of elected members of the society. They choose their own president, who is assisted by a secretary accountant. Societies may not lodge their funds, titles, or securities elsewhere than with the *Banque de l'Afrique Occidentale*.

No society may be started without its proposed regulations having previously been approved. An annual report must be sent to the Commissioner from each society.

The working of these provident societies is controlled by an *inspecteur des affaires administratives* or by an official specially appointed for this purpose by the Commissioner, and all relevant documents must be open to his inspection. A central consultative committee for

the supervision of provident societies has been set up at Yaoundé. Its composition is as follows:

The Secretary-General of the Territory. *President.*

An inspecteur des affaires administratives or an official
nominated by the Commissioner

The inspector of agriculture and stock-rearing

The director of finance

A president of a provident society

A representative of commerce

Two native notables

A secretary

} nominated by the
Commissioner

Any assets or profits of a society must, in the first place, be used to return to the actual members, either wholly or at so many shillings to the pound, the amount of their subscriptions, calculated without interest. The surplus, if any, must be applied to works, within the territory of the society and approved by the Commissioner, useful to agriculture or to stock-raising.

In French Equatorial Africa provident societies were set up by a decree of 1 January 1937, promulgated by an arrêté of 20 February 1937. Their objects and organization are the same as for the Cameroons except for a few minor differences. Nine such societies had their regulations approved by the Governor-General in 1937, and they actually began to function on 1 January 1938. By the end of that year there were twenty-eight of them, nine each in Moyen Congo and Ubangi-Shari, and five each in Gabon and Chad.

From the foregoing paragraphs it will be clear that these provident societies are very carefully controlled by the government. Undoubtedly they aim at the improvement of native agriculture. It is, therefore, unfortunate that too short a time has elapsed since their first establishment to enable a sound judgement to be made as to their worth.

14. ARMED FORCES AND POLICE

A. *French Equatorial Africa*

French Citizens

French citizens in the colony come under the French law of conscription and do their training with the nearest available corps (law of 31 March 1928).

Natives

Conscription for natives rests upon the decree of 14 January 1918, as modified by a decree of 1926. The duration of service is 15 years, of which a minimum of 3 must be with the colours. The Governor-General has power to fix the quota to be called up for training annually, and can call up the balance if necessary. It is recognized that owing to the health, physique, and habits of many of the tribes great latitude must be allowed in applying the law, and it is intended in peace-time to be only a supplementary method of recruiting. As a matter of fact, up to 1937 conscription does not appear to have been enforced upon natives at all. Recruits are enlisted voluntarily for a total period of 15 years (extended under certain circumstances), of which not less than 4 are spent with the colours. On discharge to the reserve soldiers have first claim for civil employment under government, and at the conclusion of their total service receive a small pension.

There is a permanent military tribunal at Brazzaville.

In peace-time the Général de Brigade at Brazzaville has between 4,000 and 5,000 troops of all arms (including some 550 Europeans) under his command in the colony. The bulk of these are stationed in Chad.

Police

There is a civil police force (*gardes régionaux*), amounting to about 4,000 men. They are stationed throughout the colony under the orders of the administrative officers in charge of departments and subdivisions, and of the administrateurs maires in the communes.

*B. French Cameroons**Militia*

As has been previously stated, conscription does not exist in the Cameroons. There is, however, a militia recruited voluntarily, consisting of 18 officers, 48 European N.C.O.s, and 624 native other ranks. It is organized in four companies with headquarters at Yaoundé. A detachment of artillery is stationed at Douala and the remainder of the force is stationed at the two last-mentioned places and Moundek, Mokolo, Mora, and Guidder.

Police

There is also a purely civil police force of 1,060 (*gardes indigènes*) stationed at various places in the territory under the orders of the local administrative officers.

CHAPTER X

DISTRIBUTION OF POPULATION

THIS subject has already been treated briefly in Chapter VII. There an attempt was made to arrive at the total population by combining the latest figures for French Equatorial Africa (1 July 1936) with the latest figures for the French Cameroons (1 Jan. 1939). It was possible to do this because, as mentioned in Chapter VII, the growth of the population is doubtful. Censuses of the population of the whole area were taken on 1 July 1926 and 1 July 1936. The 1936 census does not include the European community in the Cameroons. This numbered 2,164 or (according to another record) 2,159 on 1 July 1931 and 2,106 on 31 December 1934. It may therefore be taken at a round figure of 2,000, as at 1 January 1936 (*see also* p. 312). If this is added to the 1936 figures, the figures for 1926, 1936, and 1936-9 (Chap. VII) compare as follows:

1926	1936	1936-9 (Chap. VII)
5,008,892	5,763,510	6,032,500

This gives a fairly stable total of between 5,000,000 and 6,000,000 during the decade 1926-36.

French administrators consider that the census figures are too low and, as stated in Chapter VII, put the total for 1936 at over 6 millions or even at about 7 millions. These estimates seem to be based upon arbitrary assumptions, and, as already mentioned, there is no certainty that the population is increasing. The latest figures may, therefore, be accepted and the total population in 1942 put at 6 millions. Of this the European community amounts to about 1/780th, according to the 1936 census, or, in round numbers, 7,000. When the population returns of a political unit, such as the French Cameroons, are compared over a series of years, account must be taken of increase or decrease of area, due to changes in the boundaries.

The size and variety of the country have been stressed in the Introduction and general physical description, and in the chapters on people and history. The area of French Equatorial Africa and Cameroons is the size of the Sudan, nearly twelve times the size of Britain and equal to Britain, Ireland, France, Spain, Portugal, Italy, Poland, Finland, Norway, Sweden, Holland, and Switzerland combined. As already mentioned in Chapter VII, one-third of this

area is practically uninhabited. The population of the inhabited part is equal to that of the Sudan, one-seventh of that of Britain and one thirty-seventh of that of Britain and the above countries combined.

The general distribution of the population is described in Chapter VII and illustrated in Fig. 60. Part of the population is shifting. This includes nomad herdsmen such as the Cow Fulani and some of the Arabs, itinerant merchants such as Hausa pedlars, paddlers on the great rivers, gangs of recruited labourers on construction, and shifting cultivators.

As already indicated in Chapter VII, there are some large towns but no cities, and the bulk of the population live in villages. Agriculture is the main employment and the majority of the population are country-dwellers. In the native towns most of the families have country farms. In the European centres, however, numbers of Africans are employed on wages and numbers of labourers are housed in compounds.

In *The Seven Pillars of Wisdom* Lawrence wrote, of Arabia: 'This continent of theirs fell into certain great regions, whose gross physical diversities imposed varying habits on the dwellers in them.' This is equally true of Africa, and in Chapter VII the colony is divided, from north to south, into four belts, and their inhabitants are described as desert tribes, tribes of the grass-lands, bush tribes, and forest tribes (Fig. 3). In addition, special sections of that chapter are devoted to certain populations which are either not confined to one belt, such as the river tribes and the coast tribes, or are found interspersed among the other inhabitants, like the Pygmies. This division will be adhered to in dealing with the distribution of the population.

REGIONS

Desert

This region comprises the northern half of Chad territory. The settled population is found at three centres—Tibesti, Borkou, and Ennedi (Fig. 67), and the settlements have sprung up on caravan routes. The rest of the area contains desert or scanty seasonal pastures, visited by nomads. For administrative purposes it is grouped into one department, Borkou-Ennedi-Tibesti, which comprises the inhabited parts, and is administered from three French posts—Zouar, Largeau (Faya), and Fada. According to the latest available figures the areas and population are as follows:

<i>District</i>	<i>Area (sq. miles)</i>	<i>Native population</i>	<i>Density per sq. mile</i>
Tibesti	204,768	32,041	0.15
Borkou	5,000	15,500	3.0
Ennedi	17,000	11,300	0.66

Tibesti is inhabited by Tédá, a Negro-Berber race who, since the Middle Ages, have moved southwards from Gatron and Kufara, where a few still linger. Their total numbers, inside and outside of Chad, have been estimated at from 60,000 to 100,000. The bulk of the nation are concentrated on the rocky plateau of Tibesti and are known as Toubou or Tibu, which means 'the Men of the Rocks'. A scanty population is found living in caves or circular mat huts on the high 'Tarso', dependent for its livelihood upon small herds of goats and camels and upon the dates of the oases. The oases are, by comparison, thickly populated and contain permanent villages, with gardens and circular houses built of stones set in mud and thatched with rushes. From June to September, during the date harvest, there is an influx of mountaineers who have rights to a share of the crop. Their numbers are, however, so low in comparison with the vast extent of desert that the density of population is only 1 per 6 square miles. By occupation the Tédá are camel breeders and caravan men, and part of the population is nomadic. The great caravan route between Fezzan and Lake Chad passes through Tibesti.

The Tédá have penetrated to the east and south of Tibesti. The Tédá hillmen of Ennedi are a mongrel race, but their occupations and settlements resemble those of the standard stock. The population of Ennedi also comprises Arabs and Baelé or Bideyat (p. 195). The Baelé are nomadic and live in huts of grass matting or in shelters made of grass and branches. The average density of population is equivalent to 2 persons per 3 square miles.

The oases of Borkou are inhabited by sedentary Tédá called Dongosa, who share the crops with the nomads (Boulguéda). The sedentary population of Borkou numbers about 4,000 and increases to about 20,000 in July and August, when the tribes come in for the date harvest. The grazing grounds are the common property of the Boulguéda. Sedentary Arabs also inhabit the oases, and live in villages of mud houses. The nomad Arabs dwell, by family groups, in mat tents (p. 197). The caravan route from Barca and the Kufara oasis to Lake Chad passes through Borkou, and large Arab caravans of as many as 1,500 camels come from the south to purchase dates. Arab caravans also convey salt from the deposits in the neighbourhood

of Largeau to Kanem, Batha, and Ouadai. About 10,000 camels go annually to the salt-bed at Dimi.

Grass

The southern boundary of this region has been described as running roughly between the ninth and tenth parallels of latitude. On the extreme west, however, the Fulani are found grazing their herds on the grassy slopes of Adamaoua (Plate 37), well to the south of this line and, for convenience, have been included, together with the Hausa who live amongst them, and certain neighbouring tribes of the Cameroons. This region, therefore, embraces the following administrative departments of Chad and regions of the French Cameroons (Figs. 67 and 68) which are here set out, with their areas and populations, according to the latest available figures.

CHAD			
<i>Department</i>	<i>Area (sq. miles)</i>	<i>Native population</i>	<i>Density per sq. mile</i>
Ouadai	50,965	229,663	4.5
Salamat	24,324	52,966	2.17
Batha	41,853	192,016	4.58
Mayo-Kebbi . . .	12,007	202,425	16.8
Bas Chari. . . .	18,957	88,721	4.6
Baguirmi	30,965	74,005	2.31
Kanem	33,696	90,938	2.68
CAMEROONS			
<i>Region</i>			
Chari	3,861	31,739	8.22
Logone	5,350	374,066	69.91
Mandara	65,141	172,983	2.65
Benoué	22,123	153,970	6.95
Adamaoua	24,903	157,702	6.33
M'Bam	12,462	114,067	9.15
Noun	5,694	427,307	75.04

Abéché is the metropolis of Ouadai, but during the last generation its population has dwindled to 4,000. The commercial quarter is inhabited by Arabs. In 1942 the European population was reckoned at 79. Abéché is built of square mud houses and round huts with thatched roofs and lies at the junction of the caravan route to Ben-ghazi and the pilgrim way from Kano to Mecca.

The departments of Salamat, Batha, and Bas Chari are largely inhabited by Choa Arabs (p. 197), who have infiltrated the country and are found dispersed in small villages as far west as the Benue river, or leading the lives of cattle nomads. The Batha Arabs (who belong to the Ouled Rachid tribe) and the Arabs of Salamat came

Bush (Figs. 66 and 67)

This region covers the extreme south of Chad territory and most of Ubangi-Shari, and corresponds more or less to the following departments:

<i>Department</i>	<i>Area (sq. miles)</i>	<i>Native population</i>	<i>Density per sq. mile</i>
CHAD			
Logone	23,745	300,528	12.65
Moyen-Chari	16,199	168,703	10.41
UBANGI-SHARI			
Dar el Kouti	32,818	25,215	0.76
Ouham-Pendé	32,543	148,152	4.55
Ouham	14,671	89,241	6.08
Kemo-Gribingui	19,305	55,283	2.86
Ouaka	18,581	110,086	5.92
Bas M'Bomou	59,227	110,404	1.80
Haut M'Bomou	31,092	38,351	1.23

The Logone river tribes and their compact villages have been mentioned on page 201 (Plate 39; see also Fig. 59). According to the census, the density of the population is 12.65 per square mile, but French administrators estimate it as much higher, and an average density of over 40 persons per square mile is shown in Fig. 58, which is derived from French sources. According to the latest statistics, this map over-estimates the population, but it gives a true picture of the relative density and so it has been inserted.

Dar el Kouti was raided for generations, with the result that a large part has been depopulated, and Ndélé, which is a considerable town of 7,000 or 8,000 inhabitants, is a litter of broken tribes.

The department of Moyen-Chari is filled with the populous villages of the Sara tribe, and their characteristic mats seem to be similar in make, and even in name, to the *zana* mats of Northern Nigeria, so uniform are certain ways of life in Central Africa. The French post of Archambault, now a landing-place for air-passengers, is situated in this department and had, in 1942, a European population reckoned at 193 and a native population of over 1,000. One area in this department contains a population estimated at over 40 per square mile.

The departments of Ouham and Ouham-Pendé are the home of the Baya tribe. The word 'Baya' means 'red' or 'red ant'. The average density of the population is 5.02. The population of the department of Kemo-Gribingui, on the other hand, is mainly Mandjia, but the

two tribes are closely related and form one group. Kemo-Gribingui has been a hotbed of sleeping-sickness, and this explains the thin population. Ouaka department is a centre of the Banda, who form a tribal group, and these two groups—the Banda and the Mandjia-Baya—interpenetrate. There is a marked resemblance among the tribes mentioned in this paragraph. They all live in round huts and build granaries, like bee-skeps, to hold their millet. There are no very large towns, but agricultural shows are sometimes held at Bambari.

Bas M'Bomou, the country of the Nzakara tribe, and Haut M'Bomou, the land of the Azandé (p. 202), are less densely populated than the last series of departments, but contain compact villages (p. 222); and the town of Bangassou, which lies on a trunk road between East and West Africa, had in 1942 a population reckoned at 7,276 natives and 51 Europeans. The low average of the population has been attributed to the prevalence of intemperance and unnatural vice. The Azandé are organized under strong chiefs who have their armed guards (*bazinguer*). These are also found among the Vidri (a sub-tribe of the Banda) and in Dar el Kouti (Fig. 56).

Rivers (Figs. 65, 66, and 67)

The populations analysed are the fishing and trading populations dwelling on the banks of the Ogowé and of the Congo and its tributaries, commencing with the Ubangi (Plate 40) and going downstream, and the following are the departments concerned:

<i>Department</i>	<i>Area (sq. miles)</i>	<i>Native population</i>	<i>Density per sq. mile</i>
UBANGI-SHARI			
Basse-Kotto	6,360	100,340	15.77
Ombella-M'Poko . . .	15,444	90,337	5.84
Lobaye	8,764	65,632	7.48
MOYEN CONGO			
Sanga	22,972	26,009	1.13
Likouala	27,258	30,451	1.11
Likouala-Mossaka . .	25,521	100,753	3.94
Alima	8,791	40,984	4.66
Pool	25,700	187,432	7.29
Kouilou	5,393	45,509	8.43
GABON			
Djouah	15,637	39,629	2.53
Ogooué-maritime . .	16,911	53,695	3.17
Adoumas	13,513	72,204	5.34

The north bank of the Ubangi river, near Mobaye, is lined with large villages of the Yakoma and Sango tribes (p. 202), but spaces are kept free for meetings and dances. The huts have wooden frames which are readily portable (p. 222 and Plate 36). The average density of the population of the Basse-Kotto department is 15.77 per square mile, but the waterside has a population of over 40 per square mile.

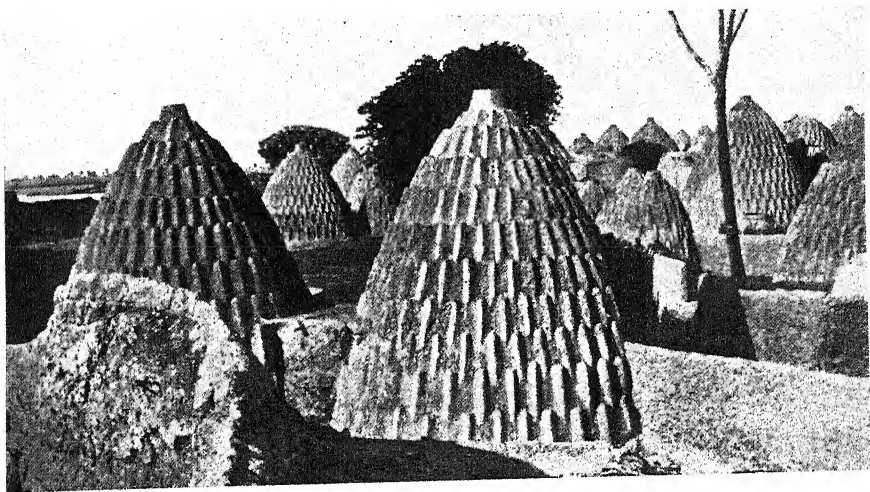
The Banziri and Bouraka tribes inhabit the departments of Ombella-M'Poko and Lobaye, and the average density of the population is 6.44 inhabitants per square mile. The area includes the town of Bangui, which had a population of 23,215 natives and 529 Europeans in 1942, and is an economic, motor, and air centre. The Banziri trade up and down the Ubangi and its tributaries, selling red-wood, beads, cloth, and dried fish, as well as native hoes or *guindja* (p. 225), which are also manufactured by the Sango and the Yakoma. The Bouraka cling to the river-bank, in spite of inundations. Their villages extend for 25 miles, and they have markets where they meet the Banda and other inland tribes.

The department of Sanga contains a medley of small tribes, known as the Sanga-Sanga or Sanga (p. 204). Even the villages are split into tribal sections. The district lies off the main route and the population is low.

The Likouala, Likouala-Mossaka, and Alima departments are inhabited by Mondjembo and Boubangui, the latter being the more numerous (p. 204). The Mondjembo are good blacksmiths and also help to man the river craft. The Boubangui raise their huts above the floods, on mounds of earth, and come and go by canoe. Their numbers are declining (p. 204). The average density of population of these three departments is 2.79 per square mile.

The shores of Stanley Pool have been thickly populated from time immemorial, and there is an area in the department of Pool where the population is estimated at over 40 per square mile. Brazzaville (which forms a commune; see p. 261) has a population of 25,000, and its environs have a population estimated at between 25 and 40 per square mile. The average density of population of the Pool department is 7.29 per square mile. The Batéké and other local tribes have been briefly described in the chapter on the People (p. 204).

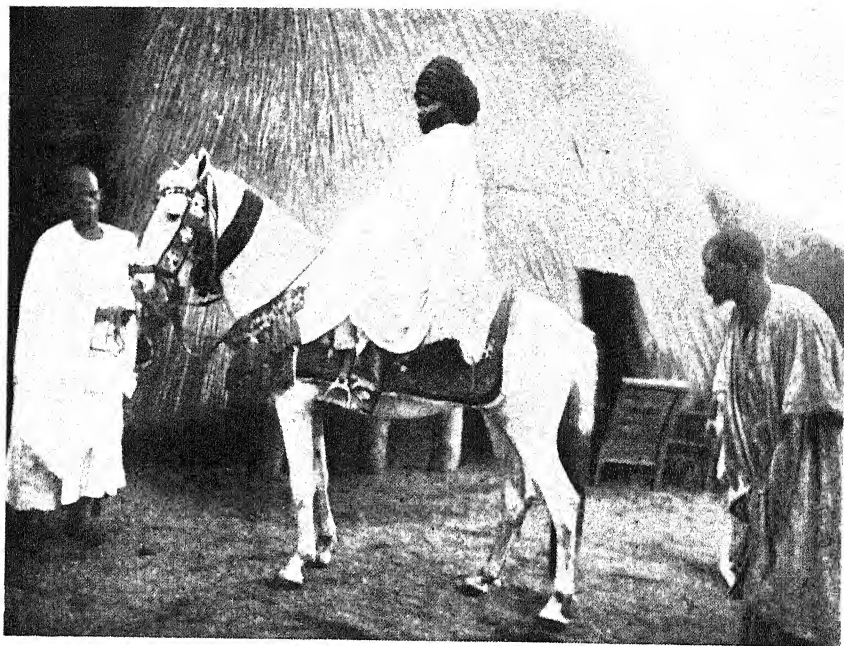
The basin of the river Kouilou is inhabited by the Bavili and Bakougni tribes (Fig. 59). The numbers of the Bavili are declining, but trade has brought other inhabitants to this part of the coast, which



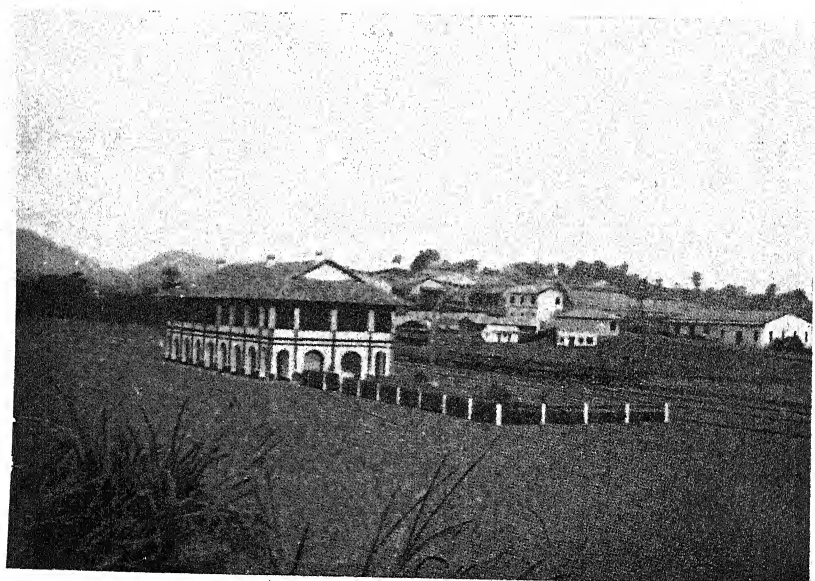
40. *A Mousgou Village*



41. *Abéché; View from the French Post. In the background is the storeyed brick palace of the Sultan*



42. *Lamido of Ngaoundéré*



43. *Yaoundé; Railway Station and Commercial Quarter*

includes the port of Pointe Noire (population 7,407) and the settlements of Madingo, Kayes, and Loango; and the population of the Kouilou department has an average density of 8.43 per square mile.

The lands of the Badouma tribe are watered by the upper stream of the Ogowé (p. 204). The Badouma are fishers, collectors of palm oil, and weavers of loin-cloths of raffia, as well as paddlers, and the density of the population of the Adoumas department is 5.34 per square mile.

The tribes of the Echira group inhabit the country between the upper N'Gounié (a tributary of the Ogowé) and the coast, including the lagoons and the banks of the Nyanga. They are healthy and intelligent, and the Ogooué-maritime department, in which they reside, has a density of population of 3.17 per square mile (p. 204).

The Okanda, who are found on the middle Ogowé and to the south of it, have modified their customs under the influence of trade (p. 204). The average density of population in the Djouah department, where they are to be found, is 2.53 per square mile.

Forest (Figs. 64 and 68)

The Fang, the Bakalai, the Bakota, and the Pygmy are typical inhabitants of the Great Forest, which spreads over the following regions and department and parts of others:

CAMEROONS			
<i>Region</i>	<i>Area (sq. miles)</i>	<i>Native population</i>	<i>Density per sq. mile</i>
N'Tem	12,934	152,125	11.76
Haut Nyong	15,096	79,960	5.20
GABON			
<i>Department</i>			
Voleu-N'Tem	13,204	67,686	5.12

N'Tem is within range of the ports of Douala and Kribi and contains trading settlements and a heavier population. Haut Nyong and Voleu-N'Tem are more characteristic of the Forest belt and have an average density of 5.16 per square mile.

The forest tribes are characterized by their zest for hunting, their few farms, and their shy habits. The Fang are a numerous and adaptable forest tribe whose compounds are characteristic (pp. 205 and 222). They are spread over the south of the French Cameroons and the north of Gabon, between the Sanaga and the Ogowé. The majority of the Bakalai are found immediately south of the middle course of the Ogowé, but they also form ten or more enclaves in the

territories of the Badouma, Bakota, Fang, and Sanga. The Bakota are more sedentary than the Fang (p. 205); and their *ménage* is less sketchy. Their villages are clean and sometimes over a mile long, and their farms are an exception to the general rule that forest tribes are not farmers. The Pygmies live in gipsy bands throughout the forest (p. 206).

Coast

Life began on the shore and still clings to it. The estuaries of the Cameroons and Gabon have been populated from time immemorial, and the population of the hinterland of Douala is one of the densest in the country. The average population of the Moungo, Wouri, Sanga-maritime, and Kribi regions is 14.76, but parts of this area have a population of over 40 per square mile, composed of tribes of the Baséké group, to which the Douala people belong. The area contains a number of large trading settlements, of which Douala, with a population estimated at 31,000, is the most important. Libreville and Port Gentil are smaller. The former has a population of 6,178 and the latter has 3,023. These towns are situated in the country of the Mpongoué tribe, and the population is spread out more thinly in the delta of the Ogowé, which as the *Africa Pilot* remarks, is 'a tradeless region, supremely damp'.

Besides the local tribes, the coast also contains a population of Europeans and foreign Africans (p. 205). The enumeration of 1926 gives the total native population of French Cameroons as 1,877,113, of whom 20,725 were Hausa and various foreigners, i.e. 1.1 per cent. On 1 January 1937 the number of foreign Africans residing in the Moungo, Wouri, and Kribi regions was as follows (there is no record of foreigners in Sanga-maritime):

Moungo	.	.	.	.	.	.	.	.	15,263
Wouri									
Non-natives of Douala	.	.	.	.	.	.	.	14,026	} 16,482
" " Cameroons	.	.	.	.	.	.	.	2,456	
Kribi	.	.	.	.	.	.	.	.	1,826
TOTAL	.	.	.	.	.	.	.	.	33,571

The number of half-castes, i.e. half-caste Europeans, recorded in the French Cameroons in 1935 was 304.

The population described in this section is found inhabiting the following regions and department:

CAMEROONS

<i>Region</i>	<i>Area (sq. miles)</i>	<i>Native population</i>	<i>Density per sq. mile</i>
Moungo	2,812	72,315	25.71
Wouri	750	41,812	55.74
Sanaga-maritime	9,000	157,215	17.46
Kribi	7,875	50,643	6.43

GABON

<i>Department</i>			
Estuaire	11,250	48,755	4.33

MOVEMENT OF POPULATION

Vital Statistics

There is no system of registration of native births, marriages, and deaths in force in French Equatorial Africa and therefore no vital statistics are available for natives. As already pointed out in Chapter VII, there is a high rate of infantile mortality. In the French Cameroons a system of registration of vital statistics was introduced in 1917 and revised in 1930 and 1935. Registration was at first optional but now it is compulsory in the majority of the southern regions. It has been necessary to proceed cautiously in the districts where the Moslem authorities keep their own records, and therefore the returns from Chari, Benoué, and Adamaoua are negligible. The returns for the period 1936-8 are as follows:

	<i>Native population</i>		
	1936	1937	1938
Births	60,530	67,063	48,992
Marriages	33,275	32,976	24,603
Deaths	46,534	40,839	40,839

The corresponding figures for the European population of the French Cameroons are:

	<i>European population</i>		
	1936	1937	1938
Births	57	86 ¹	69 ¹
Marriages	21	12	16
Deaths	17	19	43

¹ Includes acknowledgements of paternity.

Emigration and Immigration

Here, too, statistics are wanting, except in certain localities. For instance, the particulars of passenger traffic at Douala (p. 347) show that, between 1934 and 1938 inclusive, an average of 2,233 persons

left Douala and an average of 2,691 arrived, by sea, every year. As in other parts of the world, natives of West Central Africa leave their homes to seek their fortunes abroad. The frontiers established by the European Powers are political and are treated with comparative indifference by the Africans, so that there is a constant passing and re-passing. There is no El Dorado which attracts natives from French Cameroons and Equatorial Africa, but numbers of them, such as Loango tailors, washermen, cooks, and 'boys', are to be found living in small communities along the coast of West Africa.

The immigrants consist of a few Europeans who settle temporarily for purposes of trade or administration or missionary work. There has been a steady increase in the European population, as is shown by the following figures:

	<i>F.E.A.</i>	<i>Fr. Cameroons</i>	<i>Total</i>
1906	1,288	..	..
1911	2,006	..	..
1921	1,932	..	..
1922 . . . . .	..	741	..
1926, 1 July	2,502	1,570	4,072
1927 . . . . .	..	1,909	..
1928 . . . . .	..	2,010	..
1929 . . . . .	..	2,100	..
1930	4,425	1,998	6,423
1931	4,887	2,164	7,051
1934, 31 Dec. . . . .	..	2,106	..
1935, 31 " . . . . .	..	2,324	..
1936, 1 July	4,949	2,383	7,332
1937, 31 Dec. . . . .	..	3,106	..
1939	6,084	3,227	9,311

There are also Krooboys and other boatmen and labourers who come in gangs, under their headmen, to seek employment, mainly on the coast. A considerable number of Hausa from Nigeria have settled in the Cameroons (Fig. 70), and recently some natives have returned from Spanish Guinea and Fernando Po. Numbers of Syrians from Lebanon are engaged in trade throughout West Africa and a number have settled in French Cameroons and Equatorial Africa, and are augmented by fresh arrivals.

Internal Movements of Population

These are mainly due to (1) native social economy, (2) European penetration, (3) railway construction, (4) road construction and the development of motor traffic, (5) mining and other industries, and (6) experiments in native colonization. Nomads, migrants, caravans, packmen, paddlers, and hunters come under the first head and are

sufficiently dealt with elsewhere in this book. Increased European movement has involved the employment of large numbers of carriers and boatmen. Thousands of natives have been recruited from all parts and congregated in camps for the construction of the Congo-Ocean railway and port and the extension of the Cameroons lines. Recently, a good deal of road-making has been done. This has involved the concentration of labour on one road at a time. The new roads have multiplied the number of motor lorries, many of them native-owned, which bring produce from the bush. The mining and other industries have also employed large numbers of workmen.

In the French Cameroons there has been a steady influx of the Bamiléké from Noun into the regions of Moundou and N'Kam. The young Bamiléké and Bamoun take service with the native farmers, on the half-share system, and, when they have saved a little capital, purchase a farm. As some of the settlements on the right bank of the Noun were overcrowded, while the opposite bank was uninhabited, the Government has transferred part of the population (in number, over 3,000, up to 1937) to a site south of the Foubam-Bafoussam road. A taboo, which forbade a Bamiléké woman to cross the river, had first to be overcome. In 1938 another colony was started to the north of the same road.

It will be observed that all the movements of population enumerated above (except, perhaps, the colonizing experiments) are temporary. The effect of these congregations on the permanency of native institutions has been dealt with under 'The People', and their effect on health has been dealt with in Chapter VI. Quite obviously, collections of labourers from all over the country imply a loosening of family and tribal ties and tend to divorce the native from his customary way of life.

CENTRES OF POPULATION

Towns and Urban Population

There are some large native towns and European settlements but none large enough to be called cities. Brazzaville, Bangui, Lamy, Libreville, and Port Gentil are communes, with local self-government. Most of the towns are situated (a) in the north of the French Cameroons and south-west of Chad (basins of the Logone and Shari); (b) in the west of the French Cameroons (hinterland of Douala); (c) on the sea-coast; and (d) on the large rivers and main routes. Naturally, there are no large towns in the desert or in the forest. The general map shows the chief towns, and a comparison with

Fig. 58 shows that, as would be expected, most of them are within the most densely populated areas. Native information about the size of towns is unreliable. A native will speak of his 'village' which turns out to consist of a couple of huts.

The principal towns for which figures are available are given in the following list:

<i>Town</i>	<i>Population</i>	<i>Town</i>	<i>Population</i>
Douala	31,000	Mendif	5,000
Brazzaville	25,000	Bindère	5,000
Bangui	23,700	Batouri	5,000
Maroua	20,000	Abéché	4,000
Foumbam	15,000	Ati	4,000
Goz Beida	15,000	Yaoundé	3,400
Massénya	10,000	Nkongsamba	3,120
Pointe Noire	9,407	Port Gentil	3,023
Ndéle	7,500	Banyo	3,000
Bangassou	7,327	Dolo	3,000
Garoua	7,000	Mora	3,000
Libreville	6,178	Lambaréné	2,633
Lamy	6,000	Kribi	2,000
Rei Bouba	5,000	Bertoua	2,000

GAZETTEER

This section contains a list of the principal towns, omitting ports and anchorages which are described in Chapter XI, and some posts which contain little else but landing-grounds or wireless stations, lists of which are given in the chapter on Communications. Where hotels exist, this is stated, but it has not been considered necessary to mention all the rest-houses which are to be found, throughout the country, on the routes used by French officials.

The pediment of the Pantheon, in Paris, bears the inscription, 'Aux grands hommes la patrie reconnaissante', and in French Equatorial Africa many places commemorate explorers, e.g. Archambault, Béhagle, Brazzaville, Crampel, Dolisie, du Chaillu, Foureau, Fort Rousset, Lamy, Largeau, Lastoursville, and Port Gentil.

ABÉCHÉ. Altitude 1,968 feet. Lat. 13° 48' N., long. 20° 48' E. Population 4,000. (Plate 41.)

Abéché is the capital of the department of Ouadai, in the territory of Chad, and lies in a plain, ringed with low, rocky hills. Its area forms an oval over a mile long. The French fort and European quarter are situated in the east of the town. The commercial quarter of Am Souego occupies the north-east and is inhabited by Arabs from Fezzan and Kufara and by Nilotic Arabs who came in the train of Rabab (p. 235). The square, brick palace of the Sultan stands in the centre.

It was built by an Egyptian mason and is surrounded by a high mud wall. The wholesale market is at Am Souego: the retail market is situated between the palace and the mosque and is frequented by Bornouans. The European quarter, as everywhere in the territory is properly planned. The native town consists of square mud houses and round huts fenced with matting. Shade trees are scarce and mosquitoes and flies numerous.

Communications

Roads. An important route-centre, at the junction of the pilgrim way between Kano and Mecca, with the caravan track running north to Benghazi (1,240 miles), and with roads running (1) east to the frontier (100 miles) and El Fasher, in the Anglo-Egyptian Sudan; (2) south to Archambault, and (3) west to Lamy.

AMBAM. Lat. $2^{\circ} 24' N.$, long. $11^{\circ} 17' E.$

A village situated in the N^o Tem region of the French Cameroons, near the frontier of Spanish Guinea. It contains a principal store of the French Intendance Service.

Communications

Roads. Ambam lies on the road which runs north to Ebolova, with branches to Yaoundé and to Kribi, and south to Bitam and the river Ogowé. It is near the junction of the road from Bitam to Bata.

AM TIMMANE. Lat. $11^{\circ} 02' N.$, long. $20^{\circ} 15' E.$

This town, the headquarters of the department of Salamat, in the territory of Chad, is situated on the northern edge of vast marshes and is infested with flies and mosquitoes.

Communications

Roads. Tracks to N'délé, Abou Telfane, Goz Beïda and Archambault.

ARCHAMBAULT. Altitude 1,240 feet. Lat. $9^{\circ} 9' N.$, long. $18^{\circ} 24' E.$
Population: European 193; native 1,000-2,000. Hotel or rest-house.

Fort Archambault, or Archambault for short, is the headquarters of the department of Moyen-Chari, in Chad territory. It contains a laboratory, connected with the Pasteur Institute, Brazzaville, and a principal store of the Intendance Service.

Communications

Roads. Roads run (1) north-west to Lamy; (2) south to Crampel and Bangui; (3) to the west. There is a network of roads communicating with towns and villages in Chad and the French Cameroons.

Waterways. The post lies on the left bank of the river Shari which provides a route to Lamy.

Airways. The town is situated on the main air route from Europe to the Congo and has a main airfield.

ATI. Lat. $13^{\circ} 13' N.$, long. $18^{\circ} 27' E.$

Ati is the headquarters of Batha department, in Chad territory, and has a wireless station. The village consists mainly of grass huts, with a few mud buildings, but it is an important centre because of the big population of Arabs in surrounding villages. The Government post is on the Moussoro road. The wells are not very good.

Communications

Roads. Seasonal roads run west to Moussoro, and east to Abéché. The first is sandy and bad. There is also a caravan route to Lamy which goes direct to Bokoro.

Airways. Landing-ground.

AYOS. Lat. $3^{\circ} 55' N.$, long. $12^{\circ} 32' E.$

This village is built in the valley of the Nyong, within the Nyong-et-Sanaga region of the French Cameroons. It lies in the heart of the sleeping-sickness area and contains a sanatorium and a medical school, founded in 1933.

Communications

Roads. Ayos lies on the road from Yaoundé to Abong Mbang and Bertoua or Lomié.

Waterways. The river Nyong is navigable by launches between Abong Mbang and Mbalmayo (155 miles) from the end of April to the end of November.

Railways. Mbalmayo is the terminus of a branch line of the Chemin de Fer du Centre, from Douala.

BAFANG. Altitude 2,800 feet. Lat. $5^{\circ} 04' N.$, long. $10^{\circ} 07' E.$

The town is the headquarters of the subdivision of Bafang, in the N'Kam region of the French Cameroons. At the end of 1941 the

local African planters subscribed 42,420 francs to the Free French movement.

Communications

Roads. Bafang is on the road from Nkongsamba to Yaoundé.

Railways. Nkongsamba is the terminus of the Chemin de Fer du Nord, from Douala.

BAFOUSSAM. Lat. $5^{\circ} 28' N.$, long. $10^{\circ} 25' E.$

This town is the headquarters of the Bafoussam subdivision of the Noun region, in the French Cameroons.

Communications

Roads. It is connected by road with Tchang, Bamenda (in British Cameroons), Foubam, and Bafang.

BANGANGTÉ. Lat. $5^{\circ} 10' N.$, long. $10^{\circ} 30' E.$

A subdivisional headquarters, near the upper waters of the Noun, in the region of French Cameroons which takes its name from that river. It forms the subject of a special study by Mr. F. Clement C. Egerton, entitled, *African Majesty; A Record of Refuge at the Court of the King of Bangangté in the French Cameroons*. London, 1938.

Communications

Roads. On the road system of the French Cameroons.

BANGASSOU. Altitude 1,706 feet. Lat. $4^{\circ} 44' N.$, long. $22^{\circ} 48' E.$

Population 7,327, including 51 Europeans, in 1941.

This town is the headquarters of the subdivision of Bangassou, in the Bas M'Bomou department of Ubangi-Shari territory.

Communications

Roads. A motor service from Bangui connects Bangassou with the motor services of the Belgian 'Vicicongo' which maintain a connexion with the railways of East Africa.

Airways. Landing-ground.

BANGUI. Lat. $4^{\circ} 23' N.$, long. $18^{\circ} 35' E.$ Population 23,700. Hotel.

Bangui is situated on the right bank of the river Ubangi. The banks are liable to floods and the town is built on terraces. The newer

portion, which was built in 1906, is down-stream from the old town. Bangui is a township (*commune*; see p. 261), the capital of the territory of Ubangi-Shari and an important economic centre. It has a small ice-making plant and an electricity generating station sufficient to light three roads and the Government offices and quarters. The town is provided with a native hospital and an *ambulance* for Europeans. It is also a post at which medical officers engaged in combating sleeping-sickness are stationed. It contains cantonments, and a principal store of the Intendance Service.

Communications

Roads. A motor service connects Douala, via Yaoundé, with Bangui in five days, and continues eastward as far as Bangassou. Roadside rest-houses (*cases de passage*), between Bangui and Yaoundé, serve the convenience of passengers and drivers.

Waterways. The Ubangi is navigable all the year round from Bangui to its junction with the Congo. Above Bangui it is navigable during the season of high water (July-Dec.). The Congo is navigable from the junction of the Ubangi, down to Stanley Pool and for about an equal distance upstream.

Airways. Main airfield. Bangui is a station on the Sabena Air-Afrique service between Europe and the Congo.

BANYO. Altitude 3,608 feet. Lat. $6^{\circ} 45' N.$, long. $11^{\circ} 48' E.$ Population 3,000.

The headquarters of the Banyo subdivision of the Adamaoua region of the French Cameroons. It is 20 miles from the frontier of the British Cameroons.

Communications

Roads. It is connected by road with Tibati and Garoua or Yaoundé and by tracks with Yola and the Benue in Nigeria, and Foubam in the French Cameroons.

BATANGAFO. Altitude 1,394 feet. Lat. $7^{\circ} 24' N.$, long. $18^{\circ} 16' E.$

An air station, 70 miles north-west of Crampel, in Ubangi-Shari.

Communications

Roads. Roads to Archambault, Crampel, and Bangui.

Airways. Landing-ground.

BATOURI. Altitude 2,779 feet. Lat. $4^{\circ} 27' N.$, long. $14^{\circ} 26' E.$ Population 5,000.

This is the French Cameroons frontier post on the main road between Bangui and Yaoundé. It lies 30 miles west of the frontier of French Equatorial Africa, in the region of Lom-et-Kadei, of which it is the headquarters. 'Batouri' is the Hausa word for 'white man' and indicates here the arrival of Europeans in a Hausa area. (Similarly, 'Brofo Yedru', in Ashanti, means 'white man has come'.) The town contains administrative offices, office of registration of native births, deaths, and marriages, and an old German fort. It is equipped with a landing-ground, hospital containing a European ward, Seventh Day Adventist dispensary, maternity centre, and leper colony.

Communications

Roads. The motor road already mentioned and a track to Carnot.

BERBERATI. Altitude 1,820 feet. Lat. $4^{\circ} 15' N.$, long. $15^{\circ} 47' E.$ Population 1,000-2,000, including 81 Europeans, in 1941.

This is the last town of importance, within Ubangi-Shari, on the main road between Bangui and Yaoundé before reaching the frontier post of Batouri in the French Cameroons. African troops can be billeted with ease, but no information is available about billets for Europeans.

Communications

Roads. Besides the main road already mentioned there are motorable roads leading north to Carnot and Archambault, and south to beyond Nola.

BERTOUA. Altitude 2,200 feet. Lat. $4^{\circ} 34' N.$, long. $13^{\circ} 44' E.$ Population 2,000.

This is a town on the Bangui-Yaoundé motor road, 55 miles west of Batouri. It is the headquarters of a subdivision in the Lom-et-Kadei region of the French Cameroons.

Communications

Roads. Besides the trunk road already mentioned Bertoua is connected by motor road with Archambault, via Bétaré, to the north, and with Yaoundé to the west.

BITAM. Lat. $2^{\circ} 05' N.$, long. $11^{\circ} 28' E.$

The headquarters of the Bitam subdivision of the Voleu-N'Tem department of the territory of Gabon, and about 10 miles distant from the Spanish frontier.

Communications

Roads. It lies at the junction of the Ebolova-Mitsig road and the road from Bata, in Spanish Guinea.

Airways. Landing-ground.

BONGOR. Lat. $10^{\circ} 17' N.$, long. $15^{\circ} 22' E.$

Bongor lies on the right bank of the river Logone, and is liable to inundations. It is the headquarters of the Mayo-Kebbi department, in the territory of Chad.

Communications

Roads. Motor roads to Lamy, Archambault, Maroua, Garoua, and the south.

Waterways. The river Logone is navigable by launches from July to November.

BOUÉ. Lat. $0^{\circ} 06' S.$, long. $11^{\circ} 54' E.$

Headquarters of Djouah department of Gabon. Situated on the north bank of the Ogowé.

Communications

Waterways. The fall of Boué or Faré or Compiègne, at Boué, is the first fall to be met with in the ascent of the Ogowé. Below it the river is navigable, according to the season and the depth of water. During floods it expands to 450-550 yards, while, in the dry season, the main stream shrinks to about 50 yards.

Airways. Landing-ground.

CAMPO. See page 386.

DOLISIE. Lat. $4^{\circ} 20' S.$, long. $12^{\circ} 40' E.$ Population: over 1,000 natives and 102 Europeans, in 1941.

This town owes its existence to road construction and its name to the explorer Albert Dolisie (1856-99). It is now the headquarters of the Niari department of Moyen-Congo territory. African troops

could easily be billeted here, but no information is available as to billets for Europeans.

Communications

Roads. Dolisie lies on the trunk road between Loango and Brazzaville, and is also the junction of roads running north-west to Libreville and south-east to Kimongo.

DOUALA. *See* page 336.

EBOLOVA. Altitude 2,165 feet. Lat. $2^{\circ} 55' N.$, long. $11^{\circ} 14' E.$ Hotel.

The headquarters of the N'Tem region of the French Cameroons. It contains a native hospital, with a room for European cases which cannot be moved; as well as a maternity centre and a leper colony. The Government and American Mission trade schools produce fine carved work in ivory and ebony. The Government school also teaches joinery and cabinet-making, basket-making, and blacksmith work.

Communications

Roads. It is an important trade and route centre, with motor roads running north to Yaoundé, and south to Bitam and Bata or La Lara.

EDÉA. Lat. $3^{\circ} 48' N.$, long. $10^{\circ} 09' E.$

A busy market town, with numerous business houses in a shady avenue. It is a centre of the cocoa industry. The town lies on the southern bank of the river Sanaga, 45 miles upstream, and there are bridges across the river. It is the headquarters of the Sanagamaritime region of the French Cameroons. A mile from the centre of the town are the administrative offices from which there is a good view of the Edéa (or Dewoa) waterfall. Some few hundred yards above the bridges this fall is fully 130 feet high when the river is in spate. Edéa is provided with a native hospital, leper colony, maternity centre, and aerodrome; and a native quarter has been laid out in plots. La Société Nationale du Cameroun manufactures shocks out of mangrove wood.

Communications

Roads. Edéa is connected by motor road with Douala, Yaoundé, and Kribi.

Waterways. Small steam-vessels can, with some difficulty, ascend

the Sanaga at high water as far as Edéa. The river is low in March and April and at its highest in October.

Railways. Edéa is a station on the line between Douala and Yaoundé.

ESÉKA. Lat. $3^{\circ} 38' N.$, long. $10^{\circ} 45' E.$

Headquarters of the Eséka subdivision of the Sanaga-maritime region of the French Cameroons. As a result of the railway connexion it has developed into a place of some importance. A number of European business firms have establishments there.

Communications

Roads. Road to Lolodorf and Kribi or Ebolova.

Railways. Eséka is on the line between Douala and Yaoundé.

FADA. Altitude 1,788 feet. Lat. $17^{\circ} 13' N.$, long. $21^{\circ} 28' E.$

The headquarters of a subdivision of the Borkou-Ennedi-Tibesti department of Chad territory. The French Government brings supplies of aviation gasoline here for redistribution to Borkou and Tibesti.

Communications

Roads. Fada is connected by tracks with (1) Abéché (323 miles) and the road-system of French Equatorial Africa and Cameroons; (2) El Fasher; (3) Largeau, Ounianga, Gouro, and Tibesti, in Chad; and (4) with Gatron and Kufara, in Libya.

Airways. Landing-ground.

FORT FOUREAU. Lat. $12^{\circ} 04' N.$, long. $15^{\circ} 01' E.$

This post is situated at the confluence of the rivers Logone and Shari, on the west bank, opposite Lamy, from which it is distant about 12 miles. It is an important Kotoko town and was given to the Germans by the treaty of 1894. Its native name is Kousseri, but the French have renamed it Fort Foureau.

Communications

Roads. Roads to Mora, Maroua, and Lake Chad, and main roads to Kano, Bauchi, and Yola, in Nigeria.

Waterways. The Shari and the Logone.

FORT ROUSSET. Lat. $0^{\circ} 25' S.$, long. $15^{\circ} 47' E.$

Headquarters of Likouala-Mossaka department of Moyen Congo, situated on the right bank of the Kouyou, a tributary of the Likouala.

Communications

Roads. On the Brazzaville-Archambault/Lamy motor route.

Waterways. Seasonal navigation on the Kouyou and navigation on the Likouala all the year round.

FOUMBAM. Altitude 3,887 feet. Lat. $5^{\circ} 42' N.$, long. $10^{\circ} 52' E.$
Population 15,000.

Foumbam lies in an oasis of palms on the bare grass-land, and has pasture land and plantations. It is the capital of the Bamoun country and the headquarters of a subdivision of the Noun region of the French Cameroons. The Bamoun repelled the Fulani invaders (p. 199) and drove the Bamiléké across the river Noun. Foumbam was the seat of Sultan Njoya (d. 1933), who showed his originality by inventing an alphabet, collecting a museum, and blending Christianity, Islam, and paganism. His three-story palace, built in a mixture of European and Arabic styles, is his monument. Foumbam is notable for its copper, wood and leather work, and embroidery. It has a French Protestant Mission dispensary and a landing-ground.

Communications

Roads. The roads from Tchang and from Bafang via Bafoussam converge at Foumbam, and it is connected by road with Yaoundé.

FRANCEVILLE. Lat. $1^{\circ} 38' S.$, long. $13^{\circ} 33' E.$

Franceville or Massoukou, headquarters of Haut-Ogowé department of Moyen Congo, is situated on a slope, in the angle between the Ogowé and its tributary, the Passa.

Communications

Roads. A road connects with the Brazzaville-Archambault/Lamy route.

Waterways. The Passa, which skirts the hill on which Franceville stands, is 75-85 yards wide, deep and swift, but both it and the Ogowé, at this part, are navigable only by canoes.

Airways. Landing-ground.

GAROUA. Altitude 755 feet. Lat. $9^{\circ} 17' N.$, long. $13^{\circ} 24' E.$ Population 7,000.

Garoua is the headquarters of the Benoué region of the French Cameroons and is equipped with a small native hospital, containing a room reserved for Europeans; maternity centre and wireless station. Round about is a stock-raising country, and minerals—plumbago and wolfram—have been discovered near by.

Communications

Roads. Garoua lies on the trunk road from Yaoundé to Lamy.

Waterways. The town is on the north bank of the Benue which, at this part, is 900–1,300 feet wide. By the Act of the Berlin Conference of 1885 navigation is free to all nations, and small steamers can ascend to Garoua from the beginning of July to the end of October.

Airways. Landing-ground.

GOULFÉI. Lat. $12^{\circ} 23' N.$, long. $14^{\circ} 53' E.$

A Kotoko town, in northern Cameroons, consisting of bee-hive huts and square houses, enclosed within mud walls (Plate 33) and situated on the left bank of the Shari, between Fort Foureau and Lake Chad. It was ceded to the Germans in 1894, and reoccupied by the French in 1915.

Communications

Roads. Road to Fort Foureau.

GOZ BEÏDA. Lat. $12^{\circ} 13' N.$, long. $21^{\circ} 25' E.$ Population 15,000.

This is a large native town and the headquarters of a subdivision in the department of Ouadai, in Chad. It lies 75 miles to the west of the frontier of the province of Darfur, in the Anglo-Egyptian Sudan.

Communications

Roads. It is the southern terminus of the track running north to Abéché and Fada; lies 45 miles south of the motor road running west to Lamy via Am Dam; and is connected by tracks with Archambault and Ndélé, which lie to the south.

GRAND BATANGA. See page 386.

KOGO. See page 387.

KOUSSERI. See FORT FOUREAU.

KRIBI. *See* page 351.

LAÏ. (BÉHAGLE.) Lat. $9^{\circ} 26' N.$, long. $16^{\circ} 18' E.$

This town has been renamed after the explorer de Béhagle. It is placed on the right bank of the Logone, in the department of the same name, in the territory of Chad. The climate is dry. Occasionally it is rainless from November to March inclusive. The river is 490 yards wide between the banks. Floods extend the distance to 1,640 yards, but it is often fordable in the dry season. It is at its highest in the second half of September.

Communications

Roads. The best roads are those north to Lamy and south to Bangui, Brazzaville, or Yaoundé.

Waterways. The Logone is navigable by launches from May to December.

LAMBARÉNÉ. Lat. $0^{\circ} 42' S.$, long. $10^{\circ} 12' E.$ Population 2,633, including 150 Europeans, in 1941.

The headquarters of a subdivision of the Ogooué-maritime department of Gabon territory, lying on the right bank of the river Ogowé, about 80 miles from the coast as the crow flies. It is a fairly important centre and all the chief companies have trading factories there. The local mission station has a carpentry department. There is also a hospital. In 1940 Lambaréné declared for Vichy, but General de Larminat, by a demonstration of air power, persuaded the town to surrender to the forces of General de Gaulle. There is no difficulty about the billeting of African troops.

Communications

Waterways. The Ogowé is navigable up to Lambaréné, all the year round, by vessels drawing up to $3\frac{1}{2}$ feet, and regular services are run between Lambaréné and Port Gentil.

Airways. Landing-ground.

LAMY. Altitude 870 feet. Lat. $12^{\circ} 07' N.$, long. $15^{\circ} 05' E.$ Population 6,000, including 343 Europeans, in 1941. Hotel.

Fort Lamy, or Lamy for short, a township (*commune*) and the capital of Chad territory, is on the east bank of the river Shari, at its confluence with the Logone. It was founded on 29 May, 1900, by Commissaire du Government Gentil, and is a collection of flat-roofed

houses and round huts and an important traffic centre. The town is divided into five quarters: the European quarter, Djeneb el Bahr (traders), Djeneb el Ngato, Yalnas, and Abou Guénoniyé. Lepers are segregated in a village by themselves. Lamy contains a hospital and a principal store of the Intendance Service.

Communications

Roads. Roads lead, from one or other bank of the Shari, east to Abéché and to El Fasher (seasonal), south to Bangui, Brazzaville, and Yaoundé, and west to Kano. The pilgrim way from Kano to Mecca passes through Lamy, and is reported (1942) to be open all the year round as far east as Lamy.

Waterways. Lamy is well placed for communications with Lake Chad and the rivers Logone and Shari. Reference to the communications map will show the possibilities better than a written description.

Airways. Main airfield. Lamy is on the Régie Air-Afrique service (Algiers-Niamey-Zinder-Lamy-Bangui-Elisabethville-Mozambique-Madagascar) and on the Belgian Sabena service (Brussels-Niamey-Lamy-Bangui-Elisabethville), and an hotel has been built, principally for air passengers.

LARGEAU. Altitude 640 feet. Lat. $17^{\circ} 57' N.$, long. $19^{\circ} 07' E.$

An important oasis, civil and military post and air station, and the headquarters of the department of Borkou-Ennedi-Tibesti, in Chad. The original name is Faya, but the post was renamed in honour of Colonel Largeau, who occupied Borkou in 1913. Largeau contains a wireless station, and a principal store of the Intendance Service.

Communications

Roads. It is connected by seasonal road with Lamy, and by tracks with Tibesti, and with Gatron and Kufara, in Libya.

Airways. Main airfield.

LASTOURSVILLE. Lat. $0^{\circ} 49' S.$, long. $12^{\circ} 32' E.$

Headquarters of Adoumas department of Gabon, on the left bank of the middle Ogowé.

Communications

Waterways. Lastoursville lies between two waterfalls—Doumé, upstream, and Boundj, downstream. Below Boundj there is seasonal navigation by launches: above it, there is only water for canoes.

LIBREVILLE. *See* page 355.

LOANGO. *See* page 388.

LOLODORF. Lat. $3^{\circ} 11' N.$, long. $10^{\circ} 44' E.$

Lolodorf, or Lolo for short, is the headquarters of a subdivision of the Kribi region of the French Cameroons, on the north bank of the river Lokoundjé.

Communications

Roads. On the motor road between Yaoundé and Kribi, via Mbalmayo.

Railways. Mbalmayo and Yaoundé are on the line to Douala.

Waterways. The Lokoundjé is navigable only by canoes.

LONGUY. *See* page 386.

MAO. Altitude 787 feet. Lat. $14^{\circ} 08' N.$, long. $15^{\circ} 19' E.$

Subdivisional headquarters of Kanem department, in Chad. Situated in the depression to the north-east of Lake Chad, it contains a wireless station.

Communications

Roads. A junction of tracks leading north, south (to Lamy), east, and west.

MAROUA. Altitude 2,395 feet. Lat. $10^{\circ} 36' N.$, long. $14^{\circ} 20' E.$
Population 20,000.

A large Fulani and Hausa town and the headquarters of the Logone region of the French Cameroons. It lies on the river Sanaga (a tributary of the Logone), which marks the boundary between British and French Cameroons for 87 miles.

Communications

Roads. Maroua is on the motor route between Yaoundé and Lamy.

Airways. Landing-ground.

MASSÉNYA. Lat. $11^{\circ} 23' N.$, long. $16^{\circ} 09' E.$ Population 10,000.

Massénya is the headquarters of the Baguirmi department of Chad and is close to the north bank of the Bahr Erguig or Ba Mbassa. It is a large native town of flat-roofed houses and round huts.

Communications

Roads. There are no motor roads, but tracks lead to the Shari waterside, to Lamy, and to native towns to the east.

Waterways. The Bahr Erguig is usually shrunk into pools, but the launch *Leon Blot* ascended to near Massénya in 1897, and some whale-boats did the same in 1916.

MAYOUMBA. See page 387.

MBALMAYO. Lat. $3^{\circ} 32' N.$, long. $11^{\circ} 35' E.$

Mbalmayo, the headquarters of a region of French Cameroons and a commercial and traffic centre, is on the north bank of the river Nyong.

Communications

Roads. Mbalmayo is connected by motor road with Yaoundé to the north, Ebolova to the south, and Kribi to the west.

Railways. The terminus of a branch-line from Ottélé, on the Douala-Yaoundé railway.

Waterways. Launches can ascend the Nyong from Mbalmayo to Abong Mbang (155 miles) between the end of April and the end of November. Below Mbalmayo navigation is interrupted by falls and rapids.

MINDOULI. Altitude 1,578 feet. Lat. $4^{\circ} 17' S.$, long. $14^{\circ} 22' E.$

This mining town is the headquarters of a subdivision of the Pool department of Moyen Congo territory. It is a copper-mining centre and recently employed 170 Europeans and 1,500 labourers.

Communications

Roads. Mindouli is on the road between Brazzaville and Loango.

Railways. It is a station on the Congo-Océan railway.

MITSIG. Lat. $0^{\circ} 47' N.$, long. $11^{\circ} 34' E.$

A subdivisional headquarters in the department of Voleu-N'Tem, in Gabon.

Communications

Roads. The Ebolova-River Ogowé motor road.

MOKOLO. Lat. $10^{\circ} 48' N.$, long. $13^{\circ} 50' E.$

Headquarters of Mandara region in French Cameroons, near the source of the Sanaga (a tributary of the Logone) in undulating country 15 miles from the frontier of the British Cameroons.

Communications

Roads. It is connected by road with Mora and Maroua and the trunk road system.

MOUILA. Lat. $1^{\circ} 52' S.$, long. $11^{\circ} 01' E.$

This headquarters of the N'Gounié department of Gabon territory is built on the east bank of the river N'Gounié or Ouango, a tributary of the Ogowé. It contains a wireless station and a principal store of the Intendance Service.

Communications

Roads. Mouila lies on the route between Dolisie and Lambaréné.

Waterways. From Mouila down to Nagossi (60 miles) the N'Gounié is navigable by launches during most of the year. Between Nagossi and Sindara the river is interrupted by the Nagossi, Fougamou (or Impératrice Eugénie), and Samba or Tchamba falls which, however, can be avoided by the use of backwaters through which canoes can be towed. Below the Samba falls, the N'Gounié is navigable by vessels drawing up to 8 feet, to its junction with the Ogowé, 3 miles above Lambaréné (45-55 miles).

MOUNDOU. Lat. $8^{\circ} 35' N.$, long. $16^{\circ} 04' E.$

Headquarters of Logone department, Chad. Situated on the west branch of the Logone, south of Lai.

Communications

Roads. Connected by motor roads with Archambault (E.), and Bangui and Brazzaville (S.).

Waterways. The west Logone is navigable by whale-boats below the Coquil rapids which are south of and upstream from Moundou.

MOUSSORO. Lat. $13^{\circ} 38' N.$, long. $16^{\circ} 33' E.$

A veterinary station and the headquarters of the Kanem department of Chad. It is 20 miles east of the ouadi Bahr el Ghazal, or Soro or Sar-sar, and was a former dependency of Ouadai.

Communications

Roads. It has a seasonal road to Ati and Abéché and a track to Lamy.

Airways. Landing-ground.

NDÉLÉ. Altitude 2,000 feet. Lat. $8^{\circ} 24' N.$, long. $20^{\circ} 39' E.$ Population 7,500.

The Sultans of Dar el Kouti had their seat at Ndélé and it is now the headquarters of the department. It is a large native town, with a mixed population.

Communications

Roads. Roads lead north-west to Archambault and south to Bangui.

NDJOLÉ. Lat. $0^{\circ} 11' S.$, long. $10^{\circ} 44' E.$

A trading station on the Ogowé, 145 miles from the coast, and the headquarters of a subdivision of the Ogooué-maritime department of Gabon territory. It contains an *ambulance*. Samory, the Mandingo chief, died here, in exile, on 2 June 1900.

Communications

Roads. Ndjolé is reported to be the present (1942) terminus of the road from Yaoundé. Probably this road is seasonal only, as far as La Lara.

Waterways. There is a regular service all the year round between Port Gentil and Lambaréné, 45 miles below Ndjolé. Above Lambaréné, navigation is difficult and only canoes can go above Ndjolé.

NGAOUNDÉRE. Altitude 3,674 feet. Lat. $7^{\circ} 17' N.$, long. $13^{\circ} 30' E.$

This large Fulani town lies near one of the sources of the Logone river, in the rolling cattle country of Adamaoua, of which it is the administrative headquarters. It is a quaint, clean town, with winding streets of beaten sand too narrow for motor traffic. The mud palace of the *lamido* (Plate 42) stands in the middle of the town. Ngaoundéré contains European trading factories, European quarter, wireless station, leper colony, and maternity centre. The rest-house is a mile from the administrative centre. Cloth, leather-work, and meat are conspicuous in the market.

Communications

Roads. It lies about 5 miles east of the motor road between Yaoundé and Lamy.

Airways. Landing-ground.

NKONGSAMBA. Altitude 2,900 feet. Lat. $4^{\circ} 58' N.$, long. $9^{\circ} 58' E.$
Population 3,120. Rest-house. Club.

The surroundings of Nkongsamba are beautiful. It lies on the grassy uplands, above the tropical forest, and is partly enclosed by mountains, 6,500 feet high. The Ekom falls, on the Vouri-Nkam river, are about 18 miles distant. The climate is agreeable and it is a favourite resort of Europeans from the coast. The town is a railway terminus and trading centre and contains a large number of European firms. European plantations, especially coffee, stretch from Nkongsamba to Foubam. There is a hospital and dispensary and a maternity centre: a room in the hospital is reserved for European patients. The town contains an aerodrome (used also by the local section of the Aero Club) and offices of registration of native births, deaths, and marriages. African troops can be billeted without difficulty.

Communications

Roads. Nkongsamba is connected by road with Tchang, Bafang, Bafoussam, Foubam, Yaoundé, and Mbanga.

Railways. The terminus of a railway from Bonaberi.

OUESSO. Altitude 1,200 feet. Lat. $1^{\circ} 37' N.$, long. $16^{\circ} 05' E.$

Headquarters of Sanga department of Moyen Congo. Situated at the confluence of the Dja and the Sanga.

Communications

Roads. Brazzaville-Archambault/Lamy motor road.

Waterways. The Sanga is navigable above and below Ouesso, all the year round.

OUNIANGA. Altitude 1,130 feet. Lat. $19^{\circ} 05' N.$, long. $20^{\circ} 29' E.$

This post, in the Borkou-Ennedi-Tibesti department of Chad contains a principal store of the Intendance Service.

Communications

Roads. Tracks radiate to Kufara, in Libya, and to Fada, Largeau, Gouro, and Tibesti.

OWENDO. See page 387.

OYEM. Lat. $1^{\circ} 38' N.$, long. $11^{\circ} 35' E.$

Headquarters of Voleu-N'Tem, in Gabon, and placed between the rivers Voleu and N'Tem, near the source of the river Nyé, which is a tributary of the N'Tem.

Communications

Roads. It is on the road between Ebolova and Mitsig.

Waterways. The Nyé is not navigable and the Voleu is only navigable by canoes in its upper reaches.

Airways. Landing-ground.

POINTE NOIRE. See page 367.

PORT GENTIL. See page 362.

REI BOUBA. Altitude 900 feet. Lat. $8^{\circ} 41' N.$, long. $14^{\circ} 12' E.$
Population 5,000.

This is a Fulani town, with a highly organized native administration, situated in the region of Benoué, French Cameroons, on the right bank of the river Rei, a tributary of the Benue.

Communications

Roads. A road connects Rei Boubá with Garoua.

Waterways. Canoes connect the town with the Benue, and river shipping at Garoua.

RIG RIG. Lat. $14^{\circ} 18' N.$, long. $14^{\circ} 26' E.$

Subdivisional headquarters of Kanem department in Chad. Situated in the marshy plain, north of Lake Chad.

Communications

Roads. Tracks leading east to Mao and north to the oasis of Bilma, in French West Africa.

SANGMÉLIMA. Altitude 2,562 feet. Lat. $2^{\circ} 56' N.$, long. $11^{\circ} 57' E.$

A small town of French Cameroons, the headquarters of a subdivision of the N'Tem region. It is near the source of a small tributary of the river Dja, which flows into the Sanga.

Communications

Roads. Sangmélíma is linked by roads to Mbalmayo and Ebolova.

Railways. The road to Mbalmayo connects it with the terminus of the branch line of the Douala-Yaoundé railway.

Waterways. None at Sangmélima. The river Dja is not navigable above the Cholet or Chama falls (140 miles above Ouessou).

SETTÉ CAMA. *See* page 387.

SINDARA. Lat. $1^{\circ} 02' S.$, long. $10^{\circ} 39' E.$

Subdivisional headquarters of Ogooué-maritime department of Gabon. It is on the west bank of the N'Gounié, a tributary of the Ogowé.

Communications

Roads. On the route between Dolisie and Lambaréné-Libreville.

Waterways. Seasonal navigation up the N'Gounié, free from waterfalls.

TCHANG. Altitude 5,200 feet. Lat. $5^{\circ} 27' N.$, long. $10^{\circ} 04' E.$

The town lies on the eastern slope of Mount Mouti (8,792 ft.), a peak of the range which forms the frontier between the British and the French Cameroons, in which the river Vouri-N'Kam has its source. Tchang is about 10 miles from the frontier. It is the headquarters of the Noun region of the French Cameroons and has a native hospital, containing a room reserved for Europeans; a maternity centre, an agricultural research station, and a rest-house.

Communications

Roads. Tchang is a route-centre, with roads leading north to Bamenda, in the British Cameroons, east to Bafoussam and Foumbam, and south to Nkongsamba and Mbanga, on the northern railway, or to Bafang and Yaoundé.

Railways. The road to Nkongsamba connects Tchang with the railway to Bonaberi (Douala).

TIBATI. Altitude 2,844 feet. Lat. $6^{\circ} 28' N.$, long. $12^{\circ} 34' E.$

Tibati is a Fulani settlement, in the Mboum country (Fig. 56), and was founded about 1875 by Bello, successor to Adama (p. 199). The Lamido of Tibati was one of the princes who raided the region around Yoko, in the middle of the nineteenth century. Tibati is situated on a plateau, sheltered by hills of 3,600–3,900 feet, to the

north. It is the headquarters of a subdivision of Adamaoua region and has a rest-house, as well as a Norwegian Protestant Mission dispensary.

Communications

Roads. Tibati lies a mile or two up a road branching from the Yaoundé-Garoua motor road.

Waterways. It is close to a small tributary of the upper Sanaga. The latter river, however, is not navigable till Edéa, near its mouth.

Airways. Landing-ground.

YAOUNDÉ. Altitude 2,300 feet. Lat. $3^{\circ} 52' N.$, long. $11^{\circ} 31' E.$
Population 3,400. Hotels.

Yaoundé, in park-land, is on the watershed between the Sanaga and the Nyong. Yaoundé was established as a German fortified post in 1889: in 1915 the Germans were driven out by an Anglo-French military force. It was the capital of the French Cameroons until 1940, and contains upwards of 140 Government buildings, including offices, bungalows, court-house, post office, wireless station, telephone exchange, hospital, laboratory, maternity centre, schools, railway station, principal store of the Intendance Service, and trading factories. There is ample accommodation for African troops. A large number of Greek traders have settled in or near Yaoundé.

Communications

Roads. Yaoundé is the starting-point of the highway system of the French Cameroons and is connected with the motor road system of French Equatorial Africa.

Railways. It is the terminus of a line from Douala (Plate 43).

Airways. Main airfield (used by Aero Club).

YOKO. Altitude 3,353 feet. Lat. $5^{\circ} 32' N.$, long. $12^{\circ} 20' E.$

This old German post is on a small plateau and contains massive fortifications and a brick tower, 150 feet high, built in 1908. It is now the headquarters of a subdivision of M'Bam and has a wireless station.

Communications

Roads. It is on the main road between Yaoundé and the north.

YOUKADOUMA. Lat. $03^{\circ} 33' N.$, long. $15^{\circ} 07' E.$

Headquarters of Boumba-Ngoko region of French Cameroons, which lies between two rivers of these names. Another name for the Ngoko is the Dja. The waters of the village stream of Youkadouma feed the Boumba, which is a tributary of the Dja, and the Dja is a tributary of the Sanga. Youkadouma is equipped with a wireless station.

Communications

Roads. Connected with the motor routes to Yaoundé-Lamy, Bangui, and Brazzaville.

Waterways. The Dja is navigable up to its junction with the Boumba at Moloundou, but the Boumba is only good for canoes and has two falls—the Leblanc and the Schultz.

ZEMIO. Altitude 2,080 feet. Lat. $05^{\circ} 00' N.$, long. $25^{\circ} 10' E.$

Headquarters of Haut-M'Bomou department, Ubangi-Shari. Situated on the north bank of the M'Bomou.

Communications

Roads. Connected with the motor road systems of French Equatorial Africa and Belgian Congo.

Waterways. The M'Bomou is navigable by canoes and whale-boats between the rapids.

CHAPTER XI

PORTS

I. PORTS OF CALL

OF all the settlements from Cameroons river to Congo only two are true ports where ocean-going vessels can berth alongside: these are Douala and Pointe Noire. The former is an improvement on nature: a navigable river has been dredged deeper. The breakwaters of the latter have been hewed out of the rock of the Mayombe hills. There are, in addition, two reputed ports—Port Kribi and Port Gentil. Kribi has a small landlocked harbour, and Port Gentil is sheltered, except on the north. There is also the harbour of Libreville, in the river Gabon, which has as good, if not better, claims than the two last to be considered a port. Bata, Cabinda, and the rest (except Boma) are only anchorages. Three hundred miles up the Congo navigation begins again at the river port of Brazzaville.

For further description of the coastline the reader is referred to Chapter III.

II. DOUALA (FRENCH CAMEROONS)

Lat. $4^{\circ} 03' N.$, long. $9^{\circ} 41' E.$ Population 31,000. Hotels. Hospital. Garages.

SITE

In clear weather the Great Cameroon, 30 miles to the north-west, and the jagged silhouette of Fernando Po, 50 miles out at sea, are sufficient guides to the entrance of the Cameroons river, but, in the rains or during the Harmattan, the low capes on either shore are hard to distinguish. A vessel making the light-and-whistle buoy by night can anchor off the outer bar, and at daybreak cross the bar and, avoiding the shoals, pass through the 5-mile gap between Cape Cameroon and Point Souelaba and ascend the estuary to the Base Buoy, 4 miles east of Cape Cameroon. Here it is customary to wait for the pilot, and large steamers which only stop to drop their passengers can find anchorage in Souelaba Roads, half a mile to the south of the buoy. The trip to Douala, by tug or motor-boat, takes $2\frac{1}{2}$ hours. At the start the bays of Mokouschou and Modeaka lie to the west, and Malimba creek and Manoka bay to the east, while the

main channel, up the Vouri (Wouri) river, opens ahead. The bays are partly choked by banks and flats but give access through creeks to the port of Tiko and the estuary of the Bimbria river, in British Cameroons, and to the Sanaga river, and restricted navigation up the rivers Moungo and Dibamba or Loungasi. Some of the wrecks sunk by the Germans to block the channel, in 1914, are visible 5 miles north of the Base Buoy. Just above the wrecks two points, 3 miles apart, mark the entrance to the river Vouri. A channel (*Chenal de Vase*), $3\frac{1}{4}$ miles long and 15 feet deep, has been dredged from the wrecks, through the middle bar of the river, to the pool. Three miles higher a channel, about 17 feet deep, has been dredged through the inner bar to the quays and moorings of Douala, where the river is three-quarters of a mile wide. Two creeks on each side of the river, below Douala, provide canoeways to the rivers Moungo and Dibamba.

The port of Douala is situated at a gut in the Vouri river where the banks are more solid and the stream scours the channel. Its position makes it a good nucleus of trade. Market canoes drift up and down the rivers and creeks on the tides, and two railways bring produce from the north and the east. The port consists of a line of quays on the left bank of the river and mooring berths in the stream. The bank has been consolidated by building quays and a sea-wall, filling swamps, and making a concrete shore road. On the opposite bank is the small port of Bonaberi. Since Douala rallied to General de Gaulle, a British Naval Control Officer has been stationed at the port.

HISTORY

There are tales of Phoenician voyages to West Africa, and Aggrý beads, said to be Phoenician, have been handed down the centuries. The Portuguese arrived in the Cameroons in A.D. 1484, when Diego Cam liked the shrimps and dubbed the river 'Rio dos Camarões'. By the end of the eighteenth century British merchants had established themselves in trading hulks and the place had come under British influence. In 1845 the Baptist missionary, Alfred Saker (1814-80)—a strong man—obtained the first site ashore. In 1860 the firm of Woermann arrived in the estuary, but it was not until 1881 that the Germans were allowed to build a factory ashore, where they were followed by Messrs. John Holt & Co., Ltd. A court of equity was set up at Douala, consisting of British and German traders, under the supervision of Mr. Hewett, British Consul at Lagos. The title lingered after the office had gone, and recently a

District Commissioner on the Oil Rivers was known to the natives as the Consul.

In 1877 and 1881 the Douala chiefs asked that their country should be annexed to the British Empire. These requests were not granted, but, in 1883, the Cabinet decided that treaties should be concluded with the chiefs and a consular jurisdiction established, without annexation. While treaty forms were being secretly drafted, reports came of French and German activity. On 10 July 1884 Captain Brooke (H.M.S. *Opal*) heard that the German gunboat *Möwe* was bound for the Cameroons river and next day he sent Captain Moore (H.M.S. *Goshawk*) to Douala, to ask the chiefs to make no treaty till Mr. Hewett arrived. Captain Moore reported that the agent of the Woermann Company had been bribing the chiefs and that King Bell insisted that the British Consul should come within a week. Actually, the Woermann agent made a secret treaty with the chiefs on 12 July, and on 14 July 1884 it was ratified and the German flag hoisted by Dr. Gustav Nachtigal, the Imperial German Commissioner, who arrived on the *Möwe*. Mr. Hewett arrived on 19 July, five days too late, but he was not to blame for the delay. The British Government wanted trade without responsibility and was forestalled by Herr Adolph Woermann. The treaty is lost, but a declaration by the chiefs, which was accepted by the Germans, was in these words:

‘Cameroons River

July 12th 1884.

‘Our wishes is that white men should not go up and trade with the Bushmen, nothing to do with our markets, they must stay here in this river and they give us trust so that we will trade with our Bushmen.

‘We need no protection, we should like our country to annect [*sic*] with the government of any European Power.

‘We need no attention about our Marriages, we shall marry as we are doing now.

‘Our cultivated ground must not be taken from us, for we are not able to buy and sell as other country.

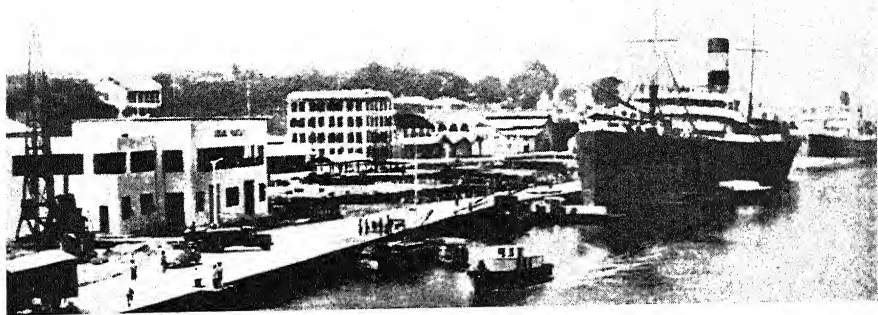
‘We shall keep Bulldogs, Pigs, Goats, Fowls, as it is now, and no Duty on them.

‘No man shall take another man’s wife by force, or else a heavy (fine?).

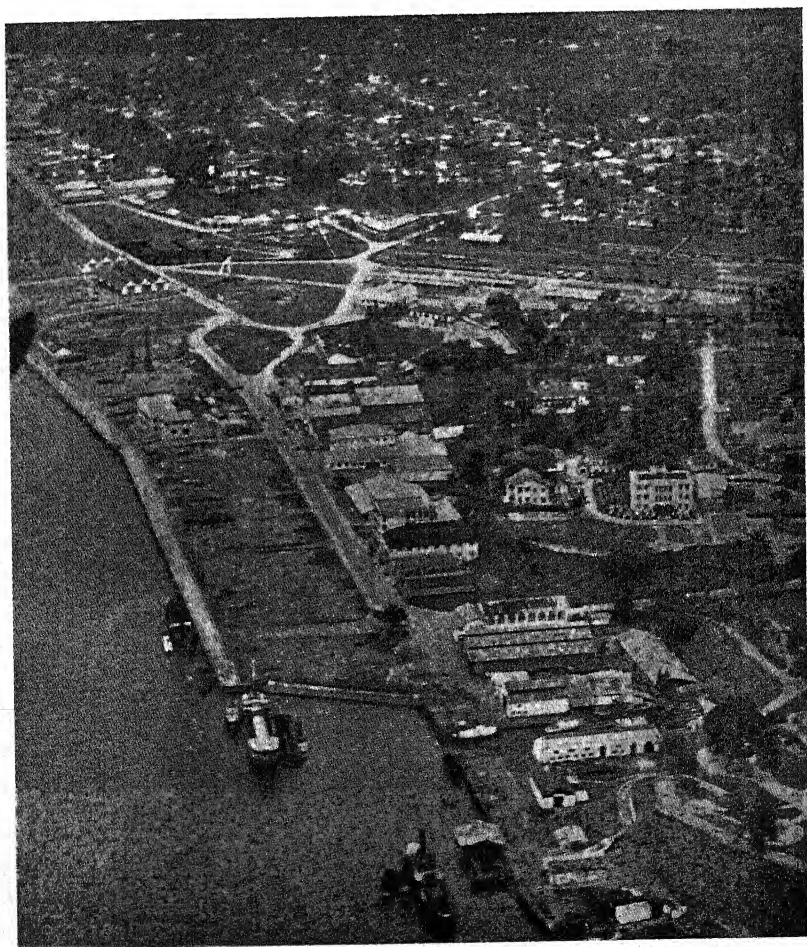
‘We need no fighting and beating without fault and no impression on paying the trusts without notice and no man shall be put to Iron for the trust.

‘We are the chiefs of Cameroons.’

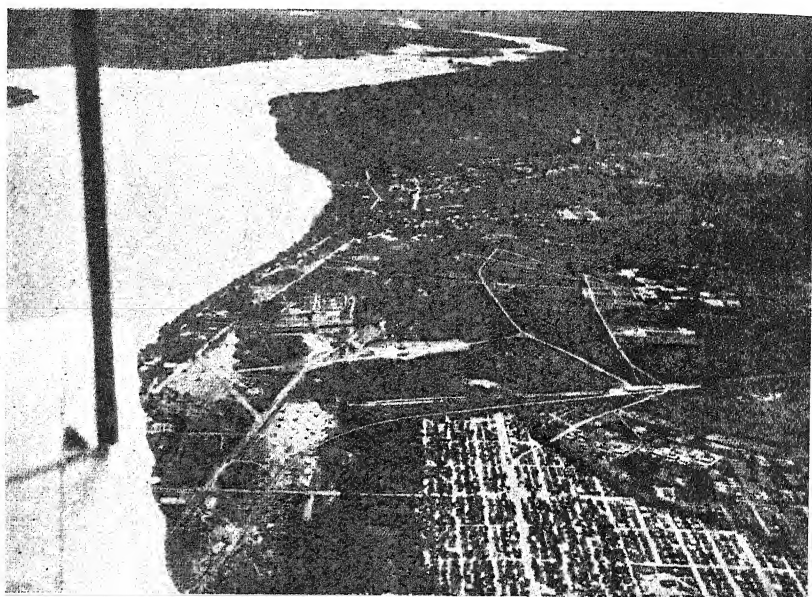
This paper comes from the German archives. It shows that English was the trade language and has a flavour of Magna Charta.



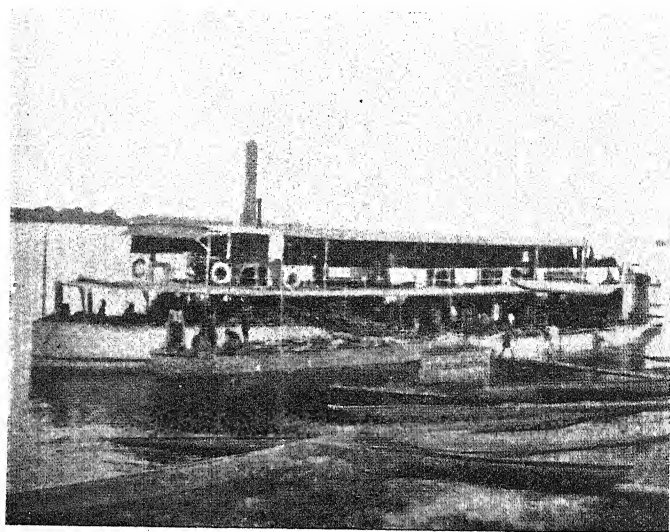
44. *Steamer Quay, Douala*



45. *Air View of Douala*



46. *Air View of Brazzaville*



47. *Stern Wheeler at Brazzaville*

For some months the position was anomalous. Chief Lock Priso of Hickory Town (Bonaberi) hoisted a British flag, and the captain of a British gunboat visiting Douala ignored the German flag: the court of equity still functioned and the representative of Germany, Dr. Buchner, occupied a rented room in the Woermann factory. Matters came to a head when the people of Hickory Town burned Bell Town. The German Admiral Knorr thereupon bombarded Hickory Town and abolished the court of equity. Claims were made in respect of damage caused by the bombardment and the situation remained tense until shortly before the Berlin Conference of 1885, when Britain recognized a German protectorate over the Cameroons.

In 1886 the Swiss Basel Mission took over the work of the English Baptists. They taught the natives trades and set up stores. The mission also set up a bank at Douala which paid 4 per cent. on deposits, and, in 1903, they started a soda-water factory.

In 1901 the administrative capital was transferred from Douala to Buëa. In 1912 the German Colonial Government expropriated 690 acres of river front at Douala. The Doualas protested through their Chief Manga Bell, but one of his cablegrams was intentionally delayed and finally, becoming desperate, he proposed to denounce the treaty with Germany and was hanged in August 1914 for treasonable conspiracy.

On 27 September 1914, after a naval bombardment, Douala surrendered to an Anglo-French force, under General Dobell, supported by a naval squadron under the command of Captain Fuller, R.N., consisting of H.M.S. *Cumberland*, *Challenger*, and *Dwarf*, assisted by armed vessels and launches of the Nigerian Marine and a French cruiser. Three streets in Douala, renamed by the French, commemorate these operations—Rue Lugard (after the Governor-General of Nigeria), Rue Cumberland, and Rue Ivy (after the Nigerian Government yacht).

Douala was allocated to the French and became the capital of the French Cameroons. The port then possessed a wharf, 213 feet long, of which 164 feet were available for berthing alongside. The depth of water in that part of the river was 19 feet. There was also a railway wharf with 78 feet of berthing space; but the depth in that part did not exceed 13 feet. And there were six small jetties for barges. Bonaberi had a quay for barges, 328 feet long. The French Government employed the Compagnie Générale des Colonies to construct harbour works and the port was improved to its present state. Subsequently, the seat of government was transferred to Yaoundé.

In December 1937 the German battleship *Schleswig-Holstein* was on a training cruise round Africa, with a party of naval cadets on board. Rumours of an intended *coup* caused a scare in Douala which put itself into a state of alert.

Douala declared for General de Gaulle on 27 August 1940, and was again made the capital of the French Cameroons.

DETAILED DESCRIPTION

Summary

<i>Depths</i>	<i>Feet</i>
Alongside steamer quay, Douala, and in the stream off Akwa Town	22-30
Off Bonaberi	24-32
Main channel, at low tide	13½

Turning Space

Between Douala and Bonaberi the river is 1,200 yards wide and, for about half of this distance, is covered by shoals over which there is only from 1 to 1½ feet of water. The turning space is sufficient for a vessel such as the *Brazza* (length 474 ft.).

Accommodation for Vessels

Steamer quay, Douala	4 large vessels
„ „ Bonaberi	1 vessel
	(beside lighters, at lighter quays)
Mooring berths	7 vessels

In 1935 the mail steamer *Brazza*, of the Chargeurs Réunis, came alongside the quay at Douala. The *Brazza* has a gross registered tonnage of 10,387 tons and a dead-weight tonnage of 6,650 tons, and her length (as already stated) is 474 feet.

The floating dock has a lifting capacity of 1,200 tons.

Detail

Outer Port

The depth at Souelaba roads or anchorage is from 33 to 42 feet, for over a square mile. Farther to the south-east there is some water

of a depth of from $22\frac{1}{2}$ to 27 feet, before the shoals and banks are reached.

Tidal Harbour

Depths	Feet
Mooring-berths	26-31
Steamer quay, Bonaberi (for ships drawing under 13 ft.)	
„ „ Douala (for ships drawing 13-26 ft.)	
Landing jetty, Chemin de Fer du Nord (at NW. end) .	35
„ „ C.C.S.O. (at NW. end)	11 $\frac{1}{2}$
„ „ R. & W. King (at NW. end)	10
Lighter quay, Douala (for vessels drawing under 13 ft.)	
„ „ Bonaberi	3

See also Summary above.

Accommodation. *See Summary above.*

Basins. None.

<i>Total Lengths</i>	<i>Quays</i>	<i>Feet</i>
Steamer quay, Douala		1,800
„ „ Bonaberi		330
Lighter quay, Douala		630
„ „ Bonaberi		150
Landing jetties:		
Chemin de Fer du Nord		243
C.C.S.O.		197
R. & W. King		165

There is also a wharf at Manoka.

Lifting Facilities

Douala

Five steam cranes of 4, 6, 8, 11, and 15 tons respectively, the last capable of being used with interchangeable long arm to lift 8 tons.

One motor-powered, 5 tons.

Bonaberi

Two steam cranes, of 8 tons and 12 tons respectively.

Floating cranes. Nil.

Lighters

Lighters serve vessels anchored at the mooring berths, especially to ship timber. When the timber comes from both sides of the river the steamers can be loaded quicker in mid-stream than alongside a quay. There is also one 100-ton water lighter.

*Warehouses**Dimensions*

Five on the quays, of 1,380 sq. yds. each.

Three within 500 yards of quays, of 2,160 sq. yds. each.

Oil Tanks (Gas Oil)

One Government-owned storage tank. Capacity, 300 tons.

*Port Facilities**Dry Docks*

None.

Floating Dock

	<i>Feet</i>
Extreme length	203
Breadth at bottom	42
Depth on sill	14
	<i>Tons</i>
Lifting capacity	1,200

This dock was built in 1905 and is operated by the Government.

Slipways

One patent slip. Details unknown, but it is of smaller capacity than the floating dock.

THE TOWN

Description (Fig. 71)

When the sun shines on the river and the wind blows up channel and there is a view of the peaks of British Cameroons and Fernando Po, Douala is at its best; but, shorn of these amenities, it is just the usual West Coast huddle of concrete and corrugated iron. The town stretches for $2\frac{1}{2}$ miles along the alluvial bank of the Vouri and spreads over a terrace which rises to 30 feet behind. This terrace is sliced by the valleys of the Besséké or Besesuku and Mbopi, which divide the town into three parts—Bell, Akwa, and Deido (Dido). The Central

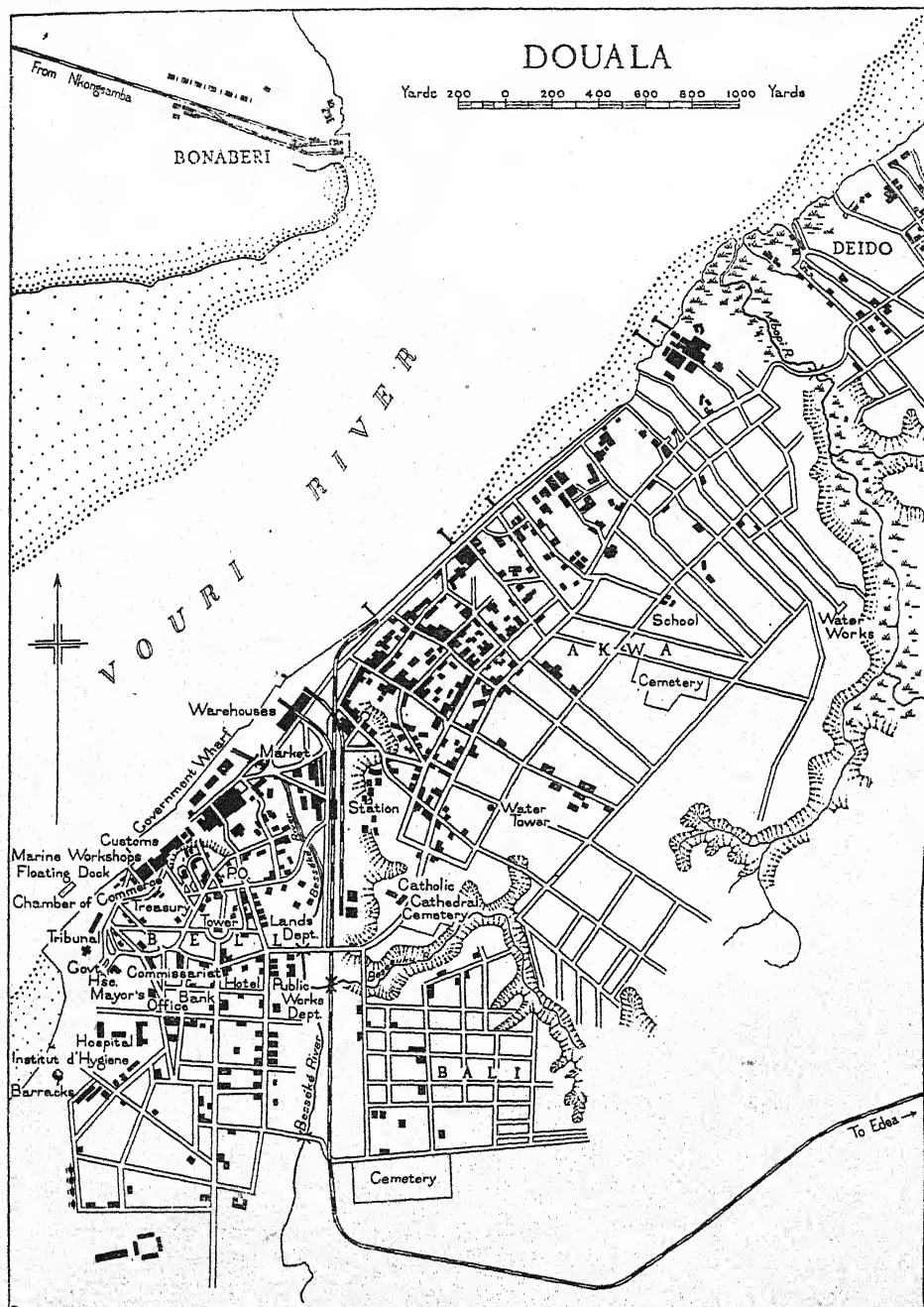


FIG. 71. Plan of Douala

Railway enters the town between Bell and Akwa, through a cutting bridged by the Rue du Roi Georges, and the railway station is situated in the valley. There are also the new native settlement of Bali, behind Akwa, and an extension of Bell called New Bell. The Departments of Justice, Public Works, Railways, Post Office, Customs, &c., have their headquarters in the Bell quarter of Douala. Here is Government House (*Hôtel du Gouvernement*), the seat of the Commissioner (*Chef de Région*) of the province of Wouri, and adjacent are a small park, enclosing memorials to German explorers, and the provincial and local administrative offices and the Immigration Office (Rue Lugard). Within easy reach are the Mayor's office, Commandant's house, Institut d'Hygiène and Hospital (Rue de l'Hôpital), Barracks, Chamber of Commerce, Customs, Post and Telegraph Office and Telephone Exchange, Treasury, Court-house (Avenue du Gouverneur Marchand), and Banque de l'Afrique Occidentale. The Lands Department (*Domaine*) is farther back, and the Public Works Department, with stores containing some materials, tools and fittings, for road, bridge, and house building. The marine workshops are down by the Custom-house, and the market, fitted with permanent stalls, forms the hub of four streets and is situated in the valley beside the railway station and near the head offices of the Ports, Harbours, and Railway Department. Close by the market is the creek where the Besséké joins the Vouri. It is spanned by bridges, and there canoes land fish for the market. There are two hotels in the Bell quarter—the Grand Hotel (formerly the Kaiserhof), and the Hotel Atlantic, on the shore road. Some avenues of shade trees are relics of German colonization. A broad road bridges the Besséké and the railway, and leads from Bell to Akwa, past the white domes of the cathedral and the conspicuous water tower.

Akwa is the European commercial quarter and is also largely populated by natives. As the life of the town centres in the river, the esplanade (*Boulevard Maritime*), lined by European factories and warehouses, is the busiest part of the place. The Bank of British West Africa Ltd. and the Banque Commerciale Africaine have offices in Akwa, and the Hôtel du Lido is situated at the corner of the Rue Joffre and the busy road from New Bell to the beach. Recently a settlement scheme was carried out in an extension of Akwa, and natives were settled on plots, according to tribes: this was completed in 1938. There are also a Hausa village and new native plots at Bali. Wherever new plots have been laid out, an intervening space of a kilometre has been kept between these and the European reservation.

The population of Douala is estimated (1942) at 31,000, consisting of 30,000 Africans and 1,000 Europeans.

The highway from Bell continues through Akwa to Deido, which is a purely native quarter, inhabited by Doualas and containing a dispensary and a church with a belfry.

Douala has soldiers' and sailors' clubs, a wireless station, submarine cable, two waterworks, and a pipe-borne water-supply fitted with hydrants; a Government electric installation whose consumption reached 427,000 kWh. in 1938, as well as a Compagnie Coloniale d'Electricité; electrical power produced by diesel generators (details unknown); a Government garage, capable of maintaining 50 vehicles; police and artillery; a principal store of the Intendance Service;¹ schools, including a trade school and arrangements for the education of European children; and a maternity centre. Douala has also an airfield, at an altitude of 43 feet, 2 miles south of the town in lat. 4° 02' N. and long. 9° 40' E. Visibility is bad.

Essential groceries are usually obtainable, including cheap French wines, imported Dutch and Gruyère cheese, local coffee and French bread, as well as meat, butter and milk from the cold-storage company. African troops may be lodged with ease: so far as European troops are concerned no definite details are available.

Trade

Douala is not a producing centre, but essentially a trade depot. In the early days of European trade it was a middleman's paradise. The local tribe had a monopoly of the up-country trade and levied a toll on European merchants who, at first, were refused sites ashore and had to live in hulks. Now produce is exported and goods are imported by steamer and transported by railway. The chief exports are cocoa, palm kernels, coffee, palm oil, rubber, ground-nuts, and bananas. Hides, ivory, timber, and cotton are also exported. La Société Nationale du Cameroun has a large saw-mill at Manoka.

The import trade feeds the French Cameroons and Chad with cotton-piece goods, ironmongery, machinery, petrol, salt and smoked fish, provisions, manufactured tobacco, wines and spirits, &c. These imports stream northwards to the two railheads, are then distributed by motor lorries to Bertoua, Foubam, Ngaoundéré, Garoua, and

¹ Military stores and stocks of tinned food for the needs of the European civil population as well as the forces are in charge of the Intendance Service, which corresponds roughly to the Quartermaster-General's department in the British Army.

Lamy, and finally trickle, in pedlars' packs, to remote villages. British coal, cement, iron, steel, and cotton-piece goods formerly made up the larger part of the imports, but lately France has taken to supplying some of these, in addition to her former supplies of wines and liqueurs, stationery, metal-work and clothing, and imports from France have exceeded those from Britain. Germany sent

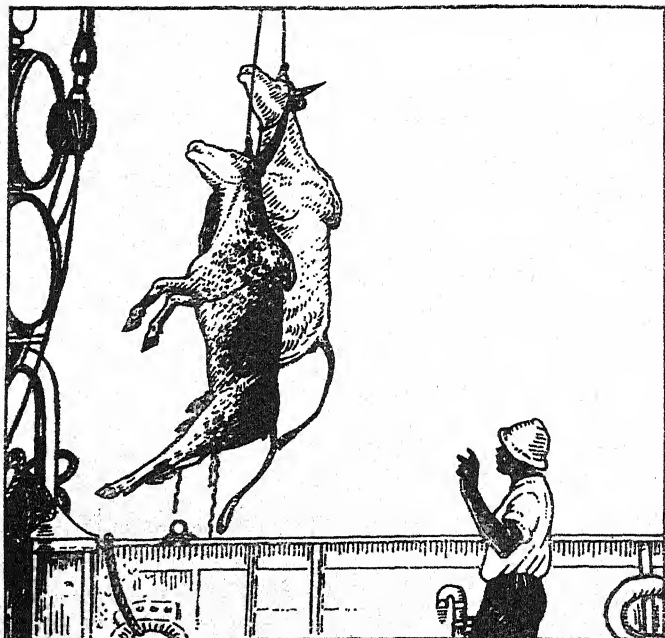


FIG. 72. *Shipping Cattle at Douala*

cement, machinery, and beer; the United States flour, leaf tobacco, petrol, and petroleum. From Japan came large quantities of cotton fabrics, hosiery, cheap rubber-soled shoes, chinaware, crockery, glassware, bicycles, tyres, and tinned foods.

France had also become the best customer in 1938, and took all the maize, bananas, ground-nuts, coffee, and cotton, two-thirds of the palm kernels and rubber, a large part of the timber, almost half the cocoa, and all the gold.

The classified returns of exports and imports relate to the French Cameroons as a whole, but the following are the totals relating to Douala for the years 1934-8.

Exports and Imports, 1934-8

	<i>Imperial tons</i>				
	1934	1935	1936	1937	1938
Imports landed at Douala	26,409	37,729	41,180	61,140	54,302
Imports landed at Souelaba	3,862	2,274	4,473	4,342	3,442
TOTAL	30,271	40,003	45,653	65,482	57,744
Exports shipped from Douala	113,967	116,380	117,971	168,496	155,728
Exports shipped from Souelaba	4,270	1,860	1,888	2,081	2,601
TOTAL	118,237	118,240	119,859	170,577	158,329
Total tonnage handled at Douala and Souelaba .	148,508	158,243	165,512	236,059	216,073
<i>Heads</i>					
Export of cattle from Douala	1,391	1,869	2,705	4,159	3,125

to which may be added the following particulars of passenger traffic during the same period:

Passenger Traffic, 1934-8

	1934	1935	1936	1937	1938
Passengers disembarked at Douala .	1,039	1,222	1,353	1,857	2,283
Passengers disembarked at Souelaba .	1,171	982	1,107	1,335	1,110
TOTAL	2,210	2,204	2,460	3,192	3,393
Passengers embarked at Douala .	1,006	1,289	1,483	1,689	1,913
Passengers embarked at Souelaba .	852	578	648	1,055	656
TOTAL	1,858	1,867	2,131	2,744	2,569
Total passengers disembarked and embarked	4,068	4,071	4,591	5,936	5,962

The development of the traffic of the port, between the years 1935 and 1938, is shown in Fig. 73.

Petroleum

The only statistics relating to the importation of petroleum are the total imports of the French Cameroons and are as follows:

DOUALA

[Including SOUELABA]

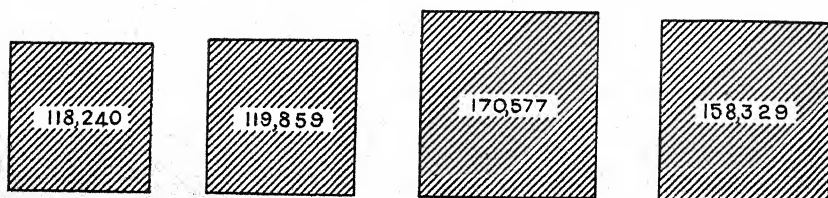
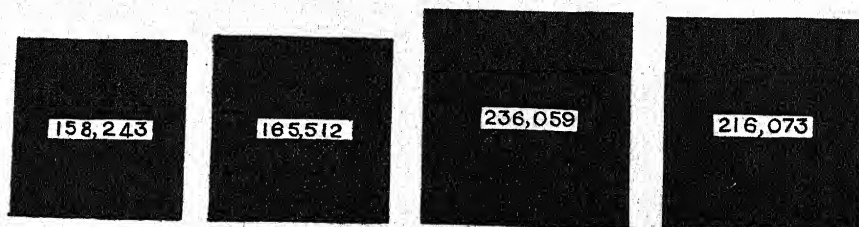
PORT TRAFFIC

1935

1936

1937

1938

NUMBER OF VESSELS ENTERED*EXPORTS in TONS**IMPORTS in TONS**TOTAL GOODS TONNAGE HANDLED*

1935

1936

1937

1938

FIG. 73. *Development of Traffic at Douala*

	<i>Imperial tons</i>				
	1934	1935	1936	1937	1938
Petroleum	1,095	1,266	1,747	2,562	1,413
Petrol	2,716	2,944	4,523	5,635	4,665

The bulk of this was landed at Douala, where the port facilities are much superior to Kribi and Campo, and where average stocks of 460,000 gallons of petrol and 74,000 gallons of petroleum are maintained at the depôts of the petroleum companies.

Shipping

Deep Sea

The traffic of the port during the five years 1934-8 was as follows:

	1934	1935	1936	1937	1938
Vessels entered at Douala	266	297	295	335	341
„ anchored off Souelaba	95	78	90	77	62
TOTAL	361	375	385	412	403

The monthly average in 1941 was:

Allied shipping	29,000 gross tonnage
Neutral	3,600 „ „

In normal times the steamers of the following lines use the port of Douala or call at Souelaba:

American West African Line.

Chargeurs Réunis.¹

Coastal steamers between Fernando Po and Douala.

Compagnie Française de Navigation à vapeur.

Compagnie Marseillaise de Navigation à vapeur (C^{ie} Fraissinet).

Elder Dempster & Co., Ltd.

Holland West Afrika Lijn.

Kroh Line (Danish).

Navigazione Libera Triestina.

Société Africaine de Transport (S.A.T.).

Société Navale de l'Ouest (S.N.O.).

United Africa Co., Ltd.

Woermann Linie.

¹ Since the outbreak of war in 1939 this company has taken over the local business of the Woermann Linie.

River

Hayward and Robins with de Suares run a service on the Vouri river to Yabassi (the highest point normally served).

Local Industries

Douala, as has been mentioned, is commercial rather than industrial, but a list of the principal trades and professions which were established there in 1937 is given in Appendix A. Only a few of these call for comment.

Cured bananas have not been much on the British market, but they are nutritious and have the consistency of dates.

The quality of workmanship of the ivory-turners is not equal to European standards.

The tailors are useful for making tropical suits of cotton drill, tussore, &c. The customer supplies the cloth, and their charges are much lower than those of British tailors, but the cut is not so smart.

A number of natives can drive or repair motor vehicles but are apt to be forcible in their methods. Others are employed in the marine and railway repair shops.

*Communications**River*

Some of the depths have already been given (*see above*, pp. 340 and 341), but they may conveniently be collected here:

	<i>Feet</i>
Outer Bar, minimum	24
Souelaba Roads or anchorage ($\frac{1}{2}$ mile S. or SSE. of Base Buoy)	39
Manoka roadstead	26-33
Base Buoy to Wrecks, minimum	16 $\frac{1}{2}$
Wrecks to Pool (by Chenal de Vase passage through Middle Bar)	15
Pool to Douala (through Inner Bar), minimum	17

The river should be navigable to Douala—

at high water and spring tides, by vessels drawing up to 21 feet;
at neap tides, by vessels drawing up to 19 feet.

Canals

None.

Roads

- N. Bamenda (165 miles).
- E. Batouri via Abong Mbang (434 miles), Bangui (870 miles).
- SE. Edéa (56 miles).
- S. Kribi via Edéa (133 miles).
- W. Tiko (93 miles), Victoria (100 miles).

Railways

1. Chemin de Fer du Centre, from Douala to Yaoundé (191 miles), with branch from Ottélé to Mbalmayo (23 miles).

The steamer and lighter quays have railway sidings connected by one track to this railway.

The five Customs warehouses are equipped with railway sidings.

2. Chemin de Fer du Nord, from Bonaberi to Nkongsamba (99 miles).

The steamer quay has two tracks connected to this railway.

III. KRIBI (FRENCH CAMEROONS)

Lat. 2° 59' N., long. 9° 56' E. Population 2,000. Hospital. Garage.

SITE

Kribi is situated on a creek at the mouth of the Kribi river. The stream drops from a ledge, 20 to 30 feet high, and broadens into a pool before it enters the sea. This pool is about a quarter of a mile long and half as wide, but about a third of it is choked with banks, and it also contains some rocks called the Wuri Rocks (*Roches Wuri*). It is deepest off the north bank, which has a quay (*Quai du Bruix*) and a pier. In spite of the quay and pier, boat-boys still wade out and carry passengers and their luggage to and from surf-boats. The entrance to the harbour is by a channel about 50 yards wide, between a sandspit on the north and the base of Margaret Point on the south. A bar at the entrance, the least depth on which is 4 feet, excludes vessels other than small craft. The anchorage for shipping is situated a mile or so off the point: boats can moor inside the harbour, off the pier head.

HISTORY

Kribi is not associated with any great historical events. It was not the seat of a native kingdom. It offers no haven to ships and has

not attracted Europeans as the ports of the estuaries. It has, however, been visited from time to time by European ships since the Portuguese arrived on the coast, and has developed from a fishing-village into a small but not unimportant trading settlement. The port has a Customs-house and a Harbour-master's office, and 100,000 francs were provided for its improvement in the budget of 1929.

DETAILED DESCRIPTION

Summary

<i>Depths</i>		<i>Feet</i>
Anchorage (NW. of Margaret Point)	. . . . .	28
Bar, minimum depth	. . . . .	4
Harbour (Quai du Bruix)	. . . . .	30

Detail

There is only the small harbour, suitable for boats, whose depth, at entrance and inside, has already been stated.

Quays

Total Length

Quai du Bruix, on north side of harbour, with a length of 100 yards, and having a 30-foot pier at its seaward end.

Lifting Facilities

None.

Lighters

Surf-boats are used, but no information is available as to whether lighters are in use.

Warehouses

Customs premises and trading factories (details unknown).

Port Facilities

Two non-sea-going motor-launches, of 10 h.p. and 30 h.p. respectively, each under 90 feet.

THE TOWN

Description

The town is the headquarters of a 'département' and subdivision, both bearing its name, and is situated round the harbour and to the

north of it. It contains Government offices, public grounds, a small post office, wireless station, trading stores, bungalows, and huts. Ebony logs are piled on an open space beside the harbour. The hospital, which lies about a quarter of a mile to the north of the quay, has 15 beds for Europeans and 40 for natives. Other medical institutions are a maternity centre and a leper colony. There is a garage



FIG. 74. *Road bridge over the Kribi river*

half-way between the quay and the hospital, and there is also a landing-ground. The Roman Catholic church and mission house, as well as a convent, are on the south side of the harbour. The river, which is about 140 yards wide where it enters the harbour, is spanned by a bridge which connects the north and south ends of the town (Fig. 74). The population is estimated at 2,000, belonging mostly to the Batanga and Mabea fishing tribes.

Some local provisions can, as a rule, be purchased.

Trade

Kribi is only 69 miles, by coastline, from Cape Souelaba and, as a port, it is overshadowed by Douala. It has, however, its uses. It serves the rich and populous country lying in the basin of the Sanaga. It is a centre of distribution of European goods, and convenient for reloading the ships with produce. The development of motor-lorry traffic supplies cheap transport by road, and, although there are no modern port facilities, and bags of cocoa have to be conveyed to steamer by surf-boat, labour is cheap and high port dues are saved.

Add to this the conservatism of 'palm-oil ruffians' who cling to the methods which have proved profitable in the past.

Kribi is the outlet of the cocoa zone of the French Cameroons. It also exports palm-kernels, rubber, ivory, ebony, and mica, and imports cotton goods, rice, and salt. In 1930 (the latest year for which separate figures are available) Kribi exported 7,288 tons of produce and imported 4,731 tons of goods.

Petroleum

As has been stated under the heading of Douala, only the total quantity of petroleum handled in the French Cameroons is ascertainable, and therefore no separate particulars are available in respect of Kribi.

Shipping

The returns of the traffic of the port have also in recent years been merged with those of the rest of the territory, but during 1930, 100 vessels called at Kribi.

Cargo steamers of the shipping lines which serve Douala, and tramp steamers, call at Kribi, as inducement offers. The Woermann Linie used to call monthly. The Compagnie Scandinave du Cameroun acted as its local agents.

Local Industries

The local industry is fishing.

Communications

River

The river is unnavigable.

Canals and Railways

There are no canals and no railways.

Roads

- N. Edéa (77 miles).
- NE. Yaoundé (195 miles).
- E. Lolodorf (70 miles); Ebolova (119 miles).
- SE. Aloum (65 miles).
- S. Lobé (6 miles); Grand Batanga (8 miles).

IV. LIBREVILLE (GABON)

Lat. $0^{\circ} 23' 09''$ N., long. $9^{\circ} 26' 24''$ E. Population 6,178. Hotel. Hospitals.

SITE

Libreville lies on the north bank of the Gabon river, 10 miles from the open sea. From outside the entrance to the channel, in clear weather, the ragged end of Cap Santa Clara can be seen, etched on the eastern sky-line, and the fainter outlines of Mont Bouët and the other small hills behind Libreville. Towards the south an horizon of water indicates the mouth of the estuary, 9 miles wide, which lies between the cape and the invisible sandspit of Pointe Pongara. Approach is through the Penelope Pass, a channel 10 miles long and 1 mile wide, along which the tide streams between two banks. At the entrance of the estuary the north shore opens out for 20 miles and Libreville is visible about half-way, at the foot of lumpy hills, 300 to 400 feet high. The southern shore is a smudge of swamps and sandbanks. A wooded islet, called Perroquet, lying off the south bank, about 15 miles up-river, has more character and forms a landmark. The estuary, from its entrance to the junction of the contributing rivers, is about the size of the Bristol Channel between Barry (or Weston) and the Severn tunnel, above Avonmouth.

HISTORY

The first European visitors known to local history were the Portuguese, who arrived at the end of the fifteenth century and thought that the estuary had the shape of a hooded smock or gabardine (*gabão*). This name has become, in French, Gabon.

By the end of the sixteenth century European ships were visiting the river for slaves and other trade. In a 'Description and Historical Declaration of the Golden Kingdom of Guinea', contained in *Purchas His Pilgrimes* and dated about 1602, mention is made of the 'River of Gabon . . . right under the Equinoctiall Line . . . a great Land well and easily to bee knowne'; but complaint is made of the 'spight or malice' of the people 'in Anno 1601, to a ship called the Palme-tree and to another, called the Moorein of Delft, as also to a Spanish Barke, who in short time, one after another they fell upon, and taking them, kild all these men and eate them, with divers other such tricks more by them done'.

The French interest in Equatorial Africa began with settlements

in the estuary. In 1839 Captain (afterwards Admiral) Bouët-Willamez obtained a site on the south bank, and in 1842 the French settled on the north bank. In the following year the Rev. Father Bessieux, of Les Pères du Saint Esprit, founded the Mission of Sainte Marie du Gabon, and Les Sœurs de l'Immaculée Conception de Castres followed in 1848. British and French gunboats were then busy suppressing the slave-trade, and in 1849 a party of slaves, rescued from the slaver *Elizia*, was landed at a beach on the north bank, which, in consequence, received the name of Libreville.

At the start of the French occupation the Gabon river had a local naval station, consisting of some sloops or gunboats and a floating hospital. The last was replaced by the first shore hospital. In 1871, after the Franco-Prussian War, Gabon was practically abandoned and Libreville was maintained as a coaling depot only, but in 1875 the French again turned their attention to the estuary. As there had been no European town there before, it was necessary to encourage the cultivation of cassava, bananas, maize, sweet potatoes, beans, and other vegetables, and the raising of goats, sheep, fowls, and ducks, in order to feed the settlement. By 1887 the town had an experimental botanical garden. The first cocoa plantation in French Equatorial Africa was made in 1892 on Perroquet. Attempts to acclimatize cattle, horses, and donkeys started about 1893. By 1895 a small herd of cattle had been raised, and the European community has since succeeded in keeping a few horses, but, generally speaking, the results have not been brilliant.

The French Government intended to make Libreville a naval base, and in 1898 it was declared to be a *point d'appui* of the fleet; but in 1904 the Minister of Marine abolished the local naval station. The labours of officials and missionaries and the development of Libreville were interrupted by the War of 1914-18. During this period, owing to the shortage of French priests, a seminary was established for training native priests, who were found to be reliable so long as they were kept under supervision. In 1939 war again interrupted the colonial programme, and in 1940 the collapse of France led to a clash of loyalties. When the Governor of Chad raised the standard of Free France Libreville stood by the Vichy Government; but, after the surrender of Lambaréné, it was invested and surrendered to the forces of General de Gaulle.

Part of Libreville is built on a reclaimed swamp, called Pira, and the filling in of swampy ground has enabled three Customs warehouses to be built. There was a plan to build a railway and transfer

the port to Owendo, but this has been superseded by the construction of the Congo-Ocean Railway and the port of Pointe Noire. Owendo, however, is used for the storage afloat of okoumé logs, awaiting shipment.

The Gabon river provides anchorage for a fleet, and the banks at its mouth afford shelter and increase the security.

DETAILED DESCRIPTION

Summary

<i>Depths</i>	<i>Feet</i>
Penelope Pass, minimum	36
<i>Anchorage</i>	
Libreville, for cargo steamers (about a mile off shore)	29½
,, ,, mail steamers (farther inshore)	18-30
,, ,, small vessels (N. of Libreville)	24-30
,, 2 miles out	45
Glass	19-25
Owendo	30
Pointe Pongara (inside the point)	42

Detail

There is no harbour. Before the outbreak of war, in 1939, the mail steamers of the Chargeurs Réunis Line, of sizes up to 15,000 tons and 470 feet in length, used the mail anchorages. A good anchorage for a sloop is 250°, 7 cables from the fixed green light on the pier. Anchorage is prohibited in the area reserved for seaplanes, off the north beach of the sea-port, and, also in the open sea, outside certain limits, south and west of the entrance to the pass.

Quays

Total Length

There are no quays or jetties which can be used by large vessels, but there are the piers described below. Small pinnaces, barges, &c., can unload at the first two.

1. Chargeurs Réunis, 393 feet long (head available for landing, 131 ft. × 36 ft.). For boats drawing under 3·3 feet (1 metre). Usually utilized.
2. Government Wharf (Jetée de la Marine), an offshoot of No. 1, about 200 ft. long. For boats drawing under 6·6 feet (2 metres).
3. Iron pier, about 200 feet long.

Lifting Facilities

Chargeurs Réunis. One 3-ton hand-operated crane, at head of pier.
Government Wharf. One 4-ton steam crane.

Lighters

Off-loading from ships in the bay is usually done by the Chargeurs Réunis, who have four 80-ton lighters, each capable of taking about 50 tons of mixed cargo in its hold. 200 tons daily can be dealt with in this manner.

*Warehouses**Dimensions*

Two Customs hangars (374 sq. yds. and 256 sq. yds.), both usually occupied by supplies.

One Chargeurs Réunis hangar (287 sq. yds.), capable of taking 200 tons mixed cargo. Normally this is used by vessels visiting the port.

Oil Tanks

None.

*Port Facilities**Docks and Slipways*

None.

THE TOWN

Description (Fig. 75)

Libreville is the capital of the Territoire (formerly the Colony) of Gabon. It is also the headquarters of the département of Estuaire and of the subdivision of Libreville. The Lieutenant-Governor of Gabon (*Chef de Territoire*) resides here. According to the latest figures (1942) the population is 6,178, consisting of 5,757 Africans and 421 Europeans. The port contains a British Vice-Consulate, a Custom-house and also a quarantine station, under the charge of officers of the Maritime Health Service. Infected or suspected vessels arriving at Port Gentil or Pointe Noire are sent to Libreville.

The buildings are scattered along a sea-front of 3 or 4 miles, from the village of Louis in the north to Glass in the south. The Government quarter occupies the centre, where the flat ground extends for about a mile from the river and gives the town its local name of Plateau. The sea-front has the congested higgledy-piggledy

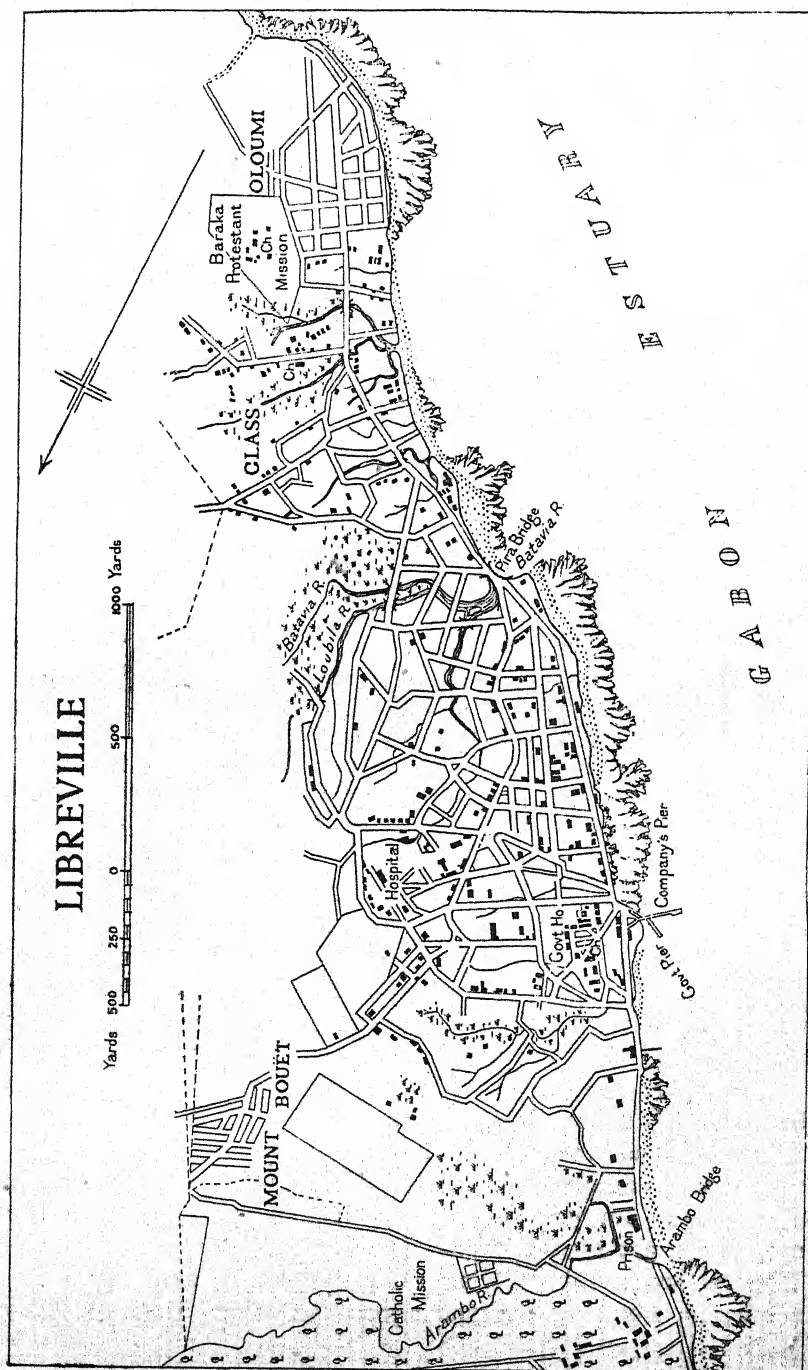


FIG. 75. Plan of Libreville

appearance typical of a West African trading settlement. From the Marine Jetty the top half of Government House is visible immediately opposite, and 700 feet from the water's edge. It is a square, two-story building, with arcaded verandas and the stub of a miniature clock-tower protruding from its roof. The house stands behind the *Place du Gouvernement*, flanked by rows of mango trees. Libreville and its shuttered wooden bungalows are buried in the foliage of mango trees and tamarinds. Government House is half-surrounded by hospitals. The old hospital stands alongside it, and, from the anchorage, the top of the new hospital can be seen rising behind it. There is separate hospital accommodation for Europeans and for natives. There are also laboratories, attached to the Pasteur Institute, Brazzaville.

Three or four hundred feet to the north of Government House the Roman Catholic church is conspicuous, with its white frontage, red-tiled roof, and wooden steeple. The buildings of the Roman Catholic Mission peep out of a grove of trees farther north, near the hut which marks the landing-place of the submarine cable. There are also Protestant and Roman Catholic Mission stations to the south of the town. The Government quarter contains the offices of the administration and the Kéréllé Botanical Gardens, and is overlooked by the water tower at the back.

The Banque Commerciale Africaine and Banque de l'Afrique Occidentale have agencies. The town professes to have hotel accommodation, but it must be remembered that in West Africa hotels are primitive and often temporary. There is plenty of accommodation in the town for African troops, but no details are available as to accommodation for European troops. Other establishments include a chamber of commerce, post and telegraph office, wireless station, landing-ground, courthouse, a principal store of the Intendance Service, police station (*Commissariat*), and schools, including a trade school. The town is provided with a water supply, and a system for supplying both light and power to the town was installed in 1937.

The suburb of Glass is an important native town and centre of European trade. The local natives belong to the Mpongoué tribe. They are a handsome race, with traces of Portuguese and other European blood, but have also inherited European vices and diseases. Their houses are generally built on piles, with walls of planks or raffia canes, and contain tawdry, old-fashioned European furniture. There is also in Libreville and its environs a Moslem community numbering about 1,600, of whom 500 are practising Moslems. They

have their mosque and Koranic schools. The building of the former was subsidized by the French Colonial Government. In 1939 the Imam of the mosque was one N'dari N'baye, a veteran of the War of 1914-18, who had achieved French citizenship, the Croix de Guerre, and the pilgrimage to Mecca.

Trade

French trade began here, but Libreville has been supplanted by Port Gentil as a centre of commerce. There is an air of decay about the place: it continues to ply a somewhat sleepy general trade by importing European goods and exporting cocoa, coffee, timber, rubber, palm oil, and palm kernels. The preparation of cocoa has been steadily improved and it has found a ready sale on the Paris market. A special feature is the export of ebony and red-wood for dye. In 1937 Libreville exported 182,034 tons of produce and imported 12,778 tons of goods, but before the outbreak of war in 1939 the exports had fallen to 115 tons a month and the imports to 900 tons. Since then the imports have fallen to 250 tons monthly.

Petroleum

No petroleum is available, and there are no details of the quantity of petroleum handled.

Shipping

During 1937, 223 vessels, having a total net tonnage of 706,000 tons, entered the port. Before the outbreak of hostilities in 1939 the port of Libreville and the adjacent Mondah bay dealt with a monthly tonnage of 56,500 (18 ships).

The Chargeurs Réunis passenger steamers called fortnightly at Libreville, on their way from Bordeaux to Matadi. The Woermann Linie called monthly, and the port was also visited by Messrs. Elder Dempster's steamers.

Local Industries

Fishing and farming are the local native industries. There are also saw-mills and an ice-making plant.

Communications

River

The depths have been given (on p. 357).

Roads

Libreville has these roads:

N. Guégué (Malène) ($9\frac{1}{2}$ miles).

E. Sibang (6 miles).

N'Toum (28 miles); Lambaréné (160 miles); Sindara (200 miles); Dolisie (520 miles).

S. Owendo ($9\frac{1}{2}$ miles).

V. PORT GENTIL (GABON)

Lat. (Pointe Akosso) $0^{\circ} 44'$ S., long. $8^{\circ} 41'$ E. Population 3,023. Hospital.

SITE

Port Gentil is situated at the head of Cape Lopez bay, and a glance at the chart shows its natural advantages. The bay is sheltered from the south-west wind by an island-peninsula, in the shape of a thumb. This is the extremity of the delta of the Ogowé and is called Île Lopez or Mandji. It is a low 20-mile bank, covered with scrub and, on its inner side, fringed with mangroves; and the tip (near which stands a lighthouse) is Cape Lopez, the most westerly point of Africa, south of Nigeria. The bay is further sheltered by a bank, called Banc du Prince, which projects for 5 miles, at right angles to the ball of the thumb. The shoal water on the bank breaks the swell and leaves only the north side of the bay exposed. The head of the bay is also protected by a small point (Clairette or Alougoubouna) and two small banks or spits (Alcyon and Talisman), which intervene between Banc du Prince and Port Gentil, and good anchorage is to be found in the innermost portion of the bay, off the port or inside Point Clairette. About a square mile of shallow water, over the Alcyon and Talisman banks, is reserved for seaplanes. Port Gentil is within easy access of the rivers Oranga (Oronga), Yombé, and Kondjo, which are mouths of the Ogowé. The port is situated on the west bank of the Oranga, which is navigable by small craft. Logs cut from the trees of the equatorial forest can be brought down the Ogowé and kept in a floating wood store (*parc à bois*), in calm water, until ready for shipment; one could walk on them for miles. This trade has made Port Gentil a timber port and the chief port of Gabon.

The banks which shelter the anchorage make it necessary to navigate with caution. As an early seventeenth-century voyager says of Cape Lopez, 'About this Cape there lie many Sands, whereon a ship

might smite, but behind the banks there is no feare, the Lead will give a man meanes to find his way well enough'. The bay is no place to bathe in on account of sharks.

HISTORY

The name Cape Lopez is derived from the Portuguese navigator Lopo Gonzalves, who crossed the Line and explored these coasts about 1470. By the end of the next century European vessels were visiting the coast, and three or four ships at a time might be found lying at anchor inside Cape Lopez. Gangs of slaves were brought down country to Point Apoumenda, and kept in barracoons till they could be taken off in boats to the slavers lying in the offing. The sands and mudbanks of the bay were convenient for the careening of ships, and the natives were found more friendly than the tribes of the Gabon river. 'For that it is good', says a chronicler, 'for the ships in that place to lie and refresh themselves, to fetch water and to Calke them: therefore all the ships lie most at that place, to make themselves ready, and fit to returne back againe.' The slave-trade came to an end, but the ships continued to call on more honest ventures, and gradually the French increased their hold until 1862, when Cape Lopez was ceded to France. Thereafter it was developed as the port of the Ogowé, and especially as a depot of the timber trade. It was Governor de Chavannes who, in 1889, exported the first log of okoumé. Paris was not interested, but the Woermann Company took up the idea and Germany remained the chief importer until recently. In 1913 four whaling companies had floating factories near Port Gentil; and this industry continued until 1927, when a decree (*arrêté*) suspended fishing, to prevent the extermination of the whales. The whaling station then fell into disuse.

In modern times, that is since the War of 1914-18, the settlement has taken a new name and a new lease of life. Hitherto, it had been known as Mandji, but it was renamed Port Gentil after the distinguished explorer and administrator, Emil Gentil, who, in his small launch the *Léon Blot*, explored the Shari and emerged into Lake Chad. The port had a timber boom in 1922, owing to increased building in Europe after the War. Before 1928 the port had only a small iron Customs pier, and a principal part of the development was the construction of a new and larger pier, to which 2½ million francs were allocated. The old pier was only suitable for small vessels, and, in spite of the larger size of the new pier, it is probable that cargo will continue to be landed in lighters and surf-boats.

The port may have possibilities of development as a naval base.

DETAILED DESCRIPTION

Depths

Summary

Anchorage	Feet
East of light beacon	36-42
<i>Note.</i> In the Tornado season (Feb.-April) vessels anchor ENE. of the settlement.	
SE. of Point Clairette	60
Customs-house pier, minimum	12

Detail

In addition to the anchorages already mentioned, which are situated in inlets of Cape Lopez bay, the bay itself is sheltered on all sides, except the north, and has a depth of 13 to 14 fathoms.

The anchorage reserved for seaplanes extends for nearly a mile from the shore, between the light-beacon and Peyrebere (Peyrebyre) factory, to the north-west of the beacon.

Total Lengths

Quays

1. 164 feet for barges, tugs, &c., drawing under 9½ feet (3 metres).
2. Five other wharves (no details available), only utilizable at high-tide.

Lifting Facilities

One 1-ton crane, on 164-foot quay.

Lighters

There are some in use.

Warehouses

	Feet	Square yards
Four Customs hangars	114.8 × 32.8 =	418
	114.8 × 45.9 =	585
	65.6 × 39.4 =	287
	164 × 49.2 =	896
Three company warehouses	98.4 × 91.9 =	1,004
	164 × 147.6 =	2,690
	72.2 × 42.7 =	342

*Port Facilities**Mooring Buoys*

Several for small craft.

Patent Slip

Near Chargeurs Réunis premises. Length 131 feet. Capable of taking vessels of 250 tons, of draught not exceeding 3 ft. 5 in. (1.10 metres).

Docks

None.

THE TOWN

Description

Port Gentil is the headquarters of the 'département' of Ogooué-maritime and of the subdivision of Port Gentil, and contains the residences of the *Chefs* of these areas, government offices, custom-house, post and telegraph offices, court-house, and a principal store of the Intendance Service. The church stands near the sea-front. Commercial buildings include trading factories, banks, and the office of the Chargeurs Réunis. The factories are spread out at intervals along the bay, over a distance of nearly 2 miles, and are connected by a double Decauville track, mounted on a concrete causeway 16 feet wide. Health, ashore and afloat, is safeguarded by a hospital (which contains several beds reserved for Europeans), and by officers of the Maritime Health Service. There is no hotel, but rest-house accommodation is available. African troops can be lodged in the town without difficulty, but there is no definite information as to billets for European troops.

The Banque Commerciale Africaine and Banque de l'Afrique Occidentale have agencies. The masts of the wireless station rise about a quarter of a mile west of Point Akosso. A landing-ground has been constructed half-way across the peninsula and about a couple of miles west of the settlement. The cable hut, which marks the landing-place of the submarine cable between the stations of Libreville and Pointe Noire, stands on Point Clairette. Port Gentil has no electric light and power installation and no pipe-borne water supply.

The local natives belong to the Oroungou tribe and are mainly engaged in fishing, but plantations of foodstuffs have been made in the vicinity of the settlement. The population is reckoned (1942) at 3,023, and consists of 2,606 Africans and 417 Europeans.

Trade

Port Gentil is the outlet for the trade of the basin of the Ogowé and the lagoon regions of Gabon. It imports European manufactures and exports timber, palm oil and kernels, and other produce characteristic of French Equatorial Africa. The timber trade is the most important. Situated at the mouth of a mighty river, which has alongside and behind it 170,000 square miles of the Great Equatorial Forest, it has three-quarters of the timber trade of French Equatorial Africa. The chief woods exported are okoumé, mahogany, ebony, and hard-woods. Mahogany has become scarce and the principal trade is in okoumé. This is a species of cedar, the wood of which has been found suitable for cigar boxes, three-ply panelling, and the interior coach-work of aeroplanes. It is white or rose in colour, scented, and can be cut into thin pieces. As the majority of fine Gabon woods are heavier than water, they cannot be floated in logs or rafts and can only be exported in small logs. Okoumé, however, floats well and it is at Port Gentil that the logs are assembled before shipment. Gabon sells annually over 300,000 tons of okoumé timber, the greater part of which comes from Port Gentil. La Société Gabonaise d'Entreprises et de Transports has saw-mills which convert certain kinds of logs into planks, sleepers, and shooks, and cut the okoumé to a thinness of one twenty-fifth of an inch.

The history of the whaling industry has been mentioned. In 1914, 6,771 tons of whale oil were exported, and, in 1926, 2,125 tons. During the whaling seasons of 1925 and 1926, 402 whales were killed by whalers operating from Gabon.

In 1937 Port Gentil exported 234,681 tons of timber and other produce and imported 11,854 tons of goods.

Petroleum

Details of petroleum handled are not available, but the latest stocks of fuel were (1942):

	<i>Imperial gallons</i>
Petrol	12,630
Paraffin	19,564
Oil, B.B.	3,358
„ various	675

Shipping

During 1937, 272 vessels, having a total net tonnage of 817,000 tons, entered the port.

In normal times Port Gentil is in regular steamship communication with Europe and is a port of call on the fortnightly passenger service of the Chargeurs Réunis, between Bordeaux and Matadi. It is also visited once a month by steamers of the Elder Dempster Line and is in touch, by a small coasting steamer (the *Gabon*), with Setté Cama, Mayoumba, Loango, and other small settlements. In 1941 it had about three cargo boats per month.

Local Industries

Fishing.

Communications

River

River Oranga or Oronga (route to river Yombé). Navigable by small craft.

River Yombé (most direct route from Port Gentil to river Ogowé). Navigable, at all states of the tide, only by vessels drawing less than $3\frac{1}{2}$ feet.

River Kondjo (the most important entrance to river Ogowé). Only navigable, at all states of the tide, by vessels drawing $6\frac{1}{2}$ feet.

Roads

Port Gentil stands on an insulated tract, called Île Lopez or Mandji, and there are no roads leading out of it.

Railways

The only railway is a double Decauville track, 23·6 inches (60 cm.) wide, laid on a concrete causeway, 16 feet wide, between the factories and the 164-foot quay, for the purpose of shipping produce.

VI. POINTE NOIRE (MOYEN CONGO)

Lat. $4^{\circ} 47' 27''$ S., long. $11^{\circ} 50' 28''$ E. Population 9,407. Hotels. Hospital.

SITE

Time and tide have scooped a bay in the lee of the point which screens the coast from the prevailing wind and current and provides smooth water for seaplanes and for a little yachting. A line of banks to seaward gives additional cover. The point is tipped with rocks, suitable for foundations of harbour works; the shore has flat building

space and gaps between hills permit a railway to approach. In spite of this Pointe Noire would probably have remained a fishing-village and coastal anchorage had not the French become established at Brazzaville, with a desperate need to circumvent the Congo rapids and the Belgians.

HISTORY

For ages shellfish burrowed in the foreshore until their dead valves made a beach of shell sand. Fishermen hauled their dug-outs across it and invoked the fetish rock. In the fourteenth century the King of Congo's spearmen raided the district, which became part of a kingdom stretching from Setté Cama to Benguela. Portuguese caravels arrived towards the end of the fifteenth century, and in 1490 Portuguese missionary fathers installed themselves at the capital of the kingdom of Congo, now San Salvador. In 1558 the Bayaka invaded the kingdom of Congo and held their ground till 1570, when the Portuguese general de Gouveia took a hand and helped to drive them out.

Loango was colonized by the Bavili, who came from the south. The chief of Loango set up as king of all the territory lying between the Ogowé and the Congo, including Pointe Noire. This kingdom was highly organized, with a well-established hierarchy of officials. Meanwhile, barracoons had been built on the bay, to warehouse slaves before shipment, and in 1848 Pointe Noire was one of the chief centres of the trade. At the end of the century a party of French, under Lieutenant de Vaisseau Cordier, pushed their way into Loango and Pointe Noire, found the kingdom in a state of anarchy (with poisoning in vogue), and hoisted the French flag. The Portuguese, who were the original discoverers and had maintained a loose hold on the region, complained of trespass but eventually recognized the French occupation, and the frontier with Cabinda was settled in 1901.

In March 1934 the contract for the construction of the deep-sea port of Pointe Noire was placed with La Société de Construction des Batignolles, and the first stone was laid on 11 July 1934. In 1937 a technical problem arose, due to the nature of the bottom. This caused some delay in the placing of the concrete blocks which had been manufactured locally in order to build the quays. In April 1939 the *Foucauld* berthed alongside the deep-water quay, to inaugurate the opening of a new port in Africa.

The proposed port consists of an outer breakwater, with an inner

quay, and a mole, the two constructions thus forming an enclosed basin. To construct the modern harbour the whole point has been levelled and the hook armed on its outer side with a breakwater of rock, in all 5,900 feet long, which, after about 1,900 feet, swings north at an angle of approximately 130° and projects into the sea for about three-quarters of a mile. This forms the back of the concrete deep-water quay, which will be 2,624 feet in length: 2,460 feet have been completed. At the shore end of the deep-water quay a quay for lighters has been built along the inside of the point. From the end of the breakwater a transverse jetty extends at right angles towards the bay. The entrance to the harbour lies to the east of this jetty, and the line of jetty has been continued beyond the entrance. It is intended that this jetty should swing south, parallel to the breakwater, to enclose the harbour, and foundations have been laid which prevent ships drawing 15 feet from crossing the line of the proposed jetty. In 1938 cargo was still being landed and shipped by lighters. The plan (Fig. 76) shows the harbour as actually constructed. It also shows the proposed scheme.

The native labour of the port is controlled by a special department (Direction de la main d'œuvre indigène du port de Pointe Noire), and the offices of the administration, naval depot, port office, and office of the Chargeurs Réunis are near the Customs. There is a British Naval Liaison Officer at this port. In January 1942 General Sicé, High Commissioner of Free French Africa, opened a soldiers' and sailors' club. Power for the port is supplied by the power station in the town. The port has a potential strategic value and the quay would be ideal for landing base stores. No details are available as to whether the port is capable of further development.

In studying this port, caution must be exercised to distinguish between project and performance.

DETAILED DESCRIPTION

Summary

<i>Depths</i>	<i>Feet</i>
Deep-water quay, about	31
Pier (alongside each side of head), for a distance of about 344 feet	9-13

Turning Space

The rectangular portion of the harbour basin opposite the deep-water quay measures approximately 3,608 feet by 2,624 feet without

allowing for the projected wharves on the east side. It has been dredged to a depth of about 31 feet only in the part next the deep-water quay, affording swinging room with a diameter of 1,960 feet.

Accommodation for Vessels

The bay provides commodious anchorage.

Deep-water quay. Three steamers can be unloaded at the same time.

Mooring berths inside harbour. No particulars available.

The *Foucauld* was the largest vessel docked, according to the latest available information. Her dimensions are:

							<i>Feet</i>
Length	.	.	.	.	.	.	483.4
Width	.	.	.	.	.	.	58.9
Depth	.	.	.	.	.	.	34
							<i>Tons</i>
Registered tonnage	.	.	.	.	.	.	11,028
Deadweight „	.	.	.	.	.	.	5,710

Detail

Outer Port

The depths in the bay vary from 18 to 48 feet.

Harbour

Depth alongside deep-water quay, about 31 feet.

Basins

None.

Quays

Total Lengths

						<i>Feet</i>
Deep-water quay	.	.	.	.	.	2,460
Lighter quay	.	.	.	.	.	623

Lifting Facilities

Cranes

Harbour.

One floating, 98 tons (100 metric tons), with jointed jib, to reach ships' hatches.

Note. This belongs to the contractors. There are no cranes on the deep-water quay, and goods are usually unloaded by means of ship's tackle.

Lighterage Quay

One fixed 20-ton.

Eight mobile 3-ton with 23 feet between the pivot and the hoisting gear.

Various

Two 10-ton (steam), on the railway.

Lighters

Twenty-three are in use, and two 50-ton water lighters.

Warehouses

Dimensions

Two export warehouses (closed). Floor space, each 1,925 sq. yds.

Two import warehouses (closed). Floor space, each 1,989 sq. yds.

One wooden warehouse. Floor space, 956 sq. yds.

Covered quay with covered surfaces, 1,105 sq. yds.

Oil Tanks

The proposed oil storage tanks have not yet been installed, according to the latest available information.

Port Facilities

Dry Docks and Floating Docks

None.

Slipways

One. Capable of lifting vessels of 500 tons and 13 feet draught; and with electrical landing gear for berthing large barges.

THE TOWN

Description (Fig. 76)

The European population was reckoned at 787 in 1942, and the total population at 9,407.

The town, as well as the port, is at a pioneer stage. Its layout is ambitious, and different sections are reserved for the administrative, residential, commercial, industrial, and native quarters. At present the town is only partially built, and many of the plots are still waste spaces or have only shacks or unfinished buildings. The principal street is laid out with pavements, along which a row of young shade trees has been planted, but there is still little street traffic.

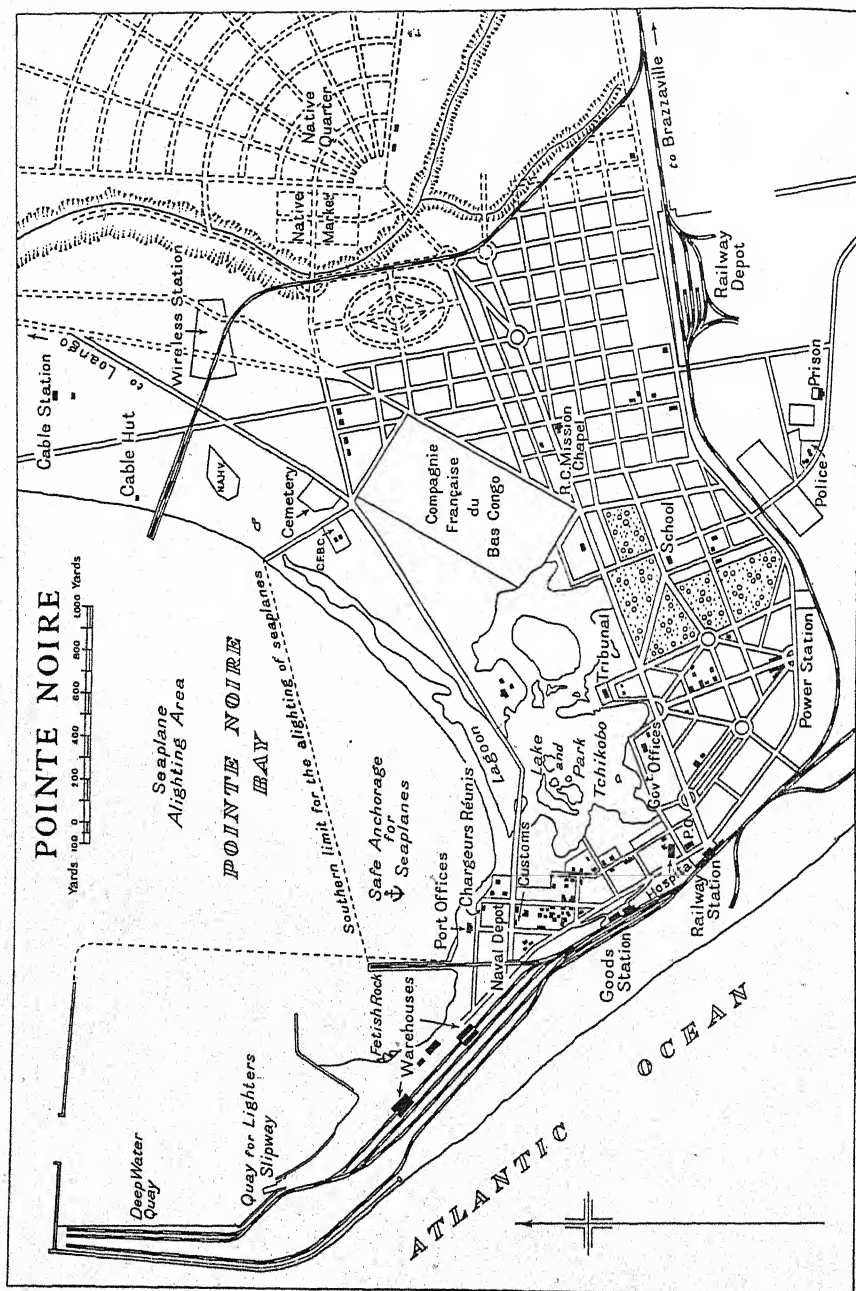


FIG. 76. Plan of Pointe Noire

The railway line skirts the town on the south. The railway depot is situated on the inland edge of the European town. The railway station, in a florid style of architecture, is situated towards the other end, and the goods station is placed conveniently near the pier. Railway labourers are accommodated in a row of concrete houses. Pointe Noire has an electric light and power installation and a municipal water supply. The power station (Central Electric Works) is situated alongside the railway line, half-way between the depot and the station, and distributes current at 15,000 volts to four sub-stations in the town and to the port. It is equipped with a diesel-engine plant, with a capacity of 1,000 h.p. There are two sets of 400 h.p., for which floor space and switchboard facilities already exist.

Pointe Noire is the headquarters of a 'département'. Most of the Government offices, including the post and telegraph offices, telephone exchange, and hospital (with a few beds for Europeans), are near the railway stations. This quarter is bounded on the north by a lagoon called Tchikobo or Chikobe, which, with its banks and islets, is to be transformed into the lake and park of Tchikobo. At Forcados, in Nigeria, swampy banks and peats cut from them, and used for filling-in, are called *chikoko*. This may be the same word. The Court-house (*Tribunal*) overlooks the lagoon. Whether or not the lagoon is a breeding-place for mosquitoes, malaria occurs in the town. The school is situated at the back, that is, on the east side of the Government quarter, on the edge of a space devoted to another park, and, still farther back, a block has been devoted to ornamental grounds, between the European and the native town. Some of the European bungalows resemble French seaside villas. Four hotels have been started—the Hôtel de France, Hôtel du Port, Pavillon Bleu, and the Hôtel du Plateau ($1\frac{1}{2}$ miles from the port). Several firms have established trading factories, two banks have taken up sites and commenced business, the Roman Catholic Mission has erected a chapel, and the Army has established a principal store of the Intendance Service.

Two miles east of the head of the harbour the masts of the wireless station are conspicuous, and the cable station is a little nearer to the beach. Pointe Noire was the terminus of the French cable from Brest, via Dakar, Cotonou, and Libreville, and is in communication with the British Atlantic cable. The wireless station links it up with Brazzaville.

The police lines, prison, and the temporary site allocated to the contractors for building the port are found at the southern exit of the

town. Two companies—the Nieuwe Afrikaansche Handels Vennootschap and the Compagnie Française du Bas Congo—have sites on the Loango road.

The site for the native quarter is laid out well to the north-east of the European township. Among the native inhabitants of Pointe Noire, who are mostly of the Bavili tribe, are to be found a couple of hundred Moslems, known as Senegalese, because the majority come from French West Africa. They have their mosque and a couple of Koranic schools and live in a little world of their own.

There is an aerodrome alongside the railway (at kilometre 6), but with limited hangar accommodation and no repair shops.

Trade

Pointe Noire is the outlet of a large part of the basins of the Congo and Niari. It imports European goods and exports copper ore from the minefields of the Niari, timber from the forests of Mayombe, and ground-nuts and other agricultural produce from the interior.

Its exports, in 1937, were 686,000 tons and its imports, 652,000 tons.

Petroleum

No particulars are available of the quantity of petroleum handled, but it is probable that a considerable quantity is landed and sent up the railway. The only information available is that, in July 1937, there was a stock of 8,000 gallons at Pointe Noire.

Shipping

During 1937, 205 vessels, having a net tonnage of 652,000 tons, entered the Customs port. Since the start of the Free French movement in 1940, the average monthly shipping has been

	<i>Tons</i>
Allied	24,000
Neutral	14,000

In normal times the port is served by the Chargeurs Réunis, Woermann Linie, American West African Line, and cargo steamers of the Fraissinet Line, from Marseilles. After war began in 1939 Portuguese steamers were the only neutral vessels which called at ports of French Equatorial Africa bound for Europe.

Local Industries

The manufacture of explosive (cheddite) for use in railway and port construction and the native industry of ivory-carving, learned by the Bavili from the Portuguese.

Communications

Rivers and Canals

None.

Roads

- N. Loango (15½ miles); Kayes (40 miles); Madingo (83 miles); Mayoumba (175 miles).
- E. Brazzaville via Loango (360 miles), with branch at Dolisie, to Libreville.
- S. Cabinda (75 miles); Banana (110 miles).

Railways

Congo-Ocean Railway, to Brazzaville (318 miles). Gauge, 3 ft. 6 in. Connected to the harbour.

Quayside arrangements

Triple railway line all the length of both quays, connecting to Congo-Ocean railway.

Pier connected to railway system.

VII. BRAZZAVILLE (MOYEN CONGO)

Lat. 4° 16' 5" S., long. 15° 17' E. Population 25,000. Hotels. Hospitals. Garages.

SITE

Matadi lies 85 miles up the Congo. Here sea-going vessels turn round, for rapids make the next 200 miles impassable. A circuit by train brings one to Stanley Pool, where the river has swelled into a lake 20 miles long (as far as from Tilbury to Shoeburyness) and 14 miles wide (as wide as the mouth of the Thames estuary at Sheppey). In the middle of the pool, the cluster of sandbanks which forms the French island of M'Bamou, 15 miles long and 8-9 miles broad, makes a roundabout. The channel is on the north side of the island, under the white 'Cliffs of Dover' (Falaises de Douvres: 718-823 ft.). The stretch of river above the pool, for 125 miles, is known

to the French as 'Le Couloir' and to the Belgians as 'Le Chenal'. It is narrow in some places, but rarely less than a mile wide, and upward-bound tugs, with their trains of barges, battle against the current until they pass into the placid middle reaches which are navigable for a further 850 miles, all the year round, and for long distances are 4 to 5 miles wide, and in places 7 or even 9 miles wide. Although it is of this great width, it is not a clear waterway, for it is studded with forest-clad islands.

The French capital of Brazzaville lies on the north bank of the river, at the west end of the pool, and faces the Belgian towns of Léopoldville and Kinchassa (Kinshasa) on the opposite shore. The width of the river here varies from $1\frac{1}{2}$ to 2 miles, according to the crossing, and the ferry-boat (which has to make a detour) takes under half an hour.

The port of Brazzaville is situated 3 miles upstream from the main town, between Pointe Hollandaise and the village of M'Pila, where the current sets towards the bank and scours the channel, and in the lee of the island of M'Bamou, so as to be protected from tornadoes coming from the east. There is a landing-jetty at the town, and cases of goods can also be landed by boat on the sandy beaches.

HISTORY

The recent discovery of large quantities of flint arrow-heads, lance-points, axes, and paring knives, in the sand and gravel beds which constitute the subsoil of the town, is proof of prehistoric workshops and suggests that the place was inhabited, from the most remote antiquity, by numerous and industrious peoples.

Brazzaville is in the Batéké country. As there is no throughway from the sea up the Congo, caravans from the coast came to Stanley Pool, and the Batéké prospered as middlemen between the coast and inland tribes. In September 1880 de Brazza reached the north shore of Stanley Pool, and persuaded King Makoko, of the Babundu tribe, to cede to France a strip along it. He found, however, quieter anchorage at Kintamo island on the southern shore, hoisted the French flag there and left a Senegalese sergeant, Malamine, in charge. When Stanley returned to Africa in 1881, representing King Leopold, he met both de Brazza and Malamine. Matters were adjusted and the French post was transferred to the present position of Brazzaville. De Brazza was appointed Commissaire-Général in French West Africa on 5 February 1883. He visited Stanley Pool on 28 April and left M. de Chavannes at the post, since named Brazzaville by the French

Geographical Society. The French occupation ended the native trade monopoly, with the result that, since 1892-3, the Batéké have been somewhat sullen in their attitude towards the Government. The French, however, were preoccupied with plans of development. In 1921 the construction of a railway between Brazzaville and Pointe Noire was begun, and in 1934 it was completed. French Equatorial Africa was undisturbed by the War of 1914-18, but, in the next world war, when France concluded an armistice with Germany on 22 June 1940, Brazzaville disapproved, and on 28 August a band of patriots deported their Governor-General and declared for General de Gaulle, who appointed as the new Governor-General M. Félix Eboué, the heroic negro Governor of Chad, who was the first in French Equatorial Africa to repudiate the German armistice. On 11 May 1941—the festival of St. Joan of Arc—the General laid the foundation stone of a monument to Savorgnan de Brazza, 'bon ouvrier de l'Empire', whose example was an inspiration to restore France to her former glory.

The Colonial Government was anxious to develop the Congo trade and foresaw the possibilities of Brazzaville. The report of a Commission of Inquiry led to the adoption of a scheme for constructing 380 yards of stone quays, a slipway, floating dock (with capacity of 500 tons), and lifting facilities. A layout was decided upon, and Governor-General Antonetti (1924-35) had a plan prepared. It showed an area, 650 yards long and 330 yards wide, as the site of the new port. There was to be a quay along the bank, with five railway sidings parallel to it, railway sheds, warehouses, and port and Customs offices. As, however, the port was not indispensable until the railway was constructed, provision was made meanwhile for the construction of 100 yards of quayage, with lifting facilities, opposite Kinchassa, south-west of the Dutch factory, between the concessions of the Dutch company and of La Société du Haut Congo. Although the lower Congo was closed to through traffic, the navigation of stretches of the river, below Brazzaville, had already been improved for small vessels. The rocky passes between Loukolela and Zinga had been buoyed, so as to permit vessels drawing $4\frac{1}{2}$ feet to reach the beginning of the rapids of Zinga in all seasons. It was intended, by removing rocks, to make a channel through these rapids, which could be used, in all seasons, by vessels drawing $4\frac{1}{2}$ feet. It was also proposed to buoy the French channel, between the north bank and M'Bamou, and to buoy and light the section Brazzaville-Lefini to give easy passage to steamers of 1,000 tons by night or day. In 1929

the sand in the bed of the river began to shift, between M'Bamou and M'Pila. This for a time delayed the execution of the port scheme and even suggested the notion of making the port above M'Pila. The colony, moreover, was poor, and by 1937, although the site had been connected to the railway, the port facilities still belonged to La Compagnie Générale des Transports en Afrique and only a part of the bank had been revetted, to make a provisional port. The development of traffic warranted an extension of the revetment and plans for the construction of the final port have since been under consideration.

DETAILED DESCRIPTION

<i>Depths</i>	<i>Summary</i>	<i>Feet</i>
Couloir		30-98
Outlet of Couloir		13-19
" " (deeps)		36-45
M'Bamou I., north bank		9-30
Below 'Cliffs of Dover' (deeps)		59-72
Near mouth of river M'Pila (in places)		75
Between Brazzaville and Point Kalina		82
Average depth opposite Brazzaville		56

The river is in flood from October to January, inclusive, and there is also a rise about 15 May. It is at its highest, as a rule, about 15 December and 15 May. The water is low between 15 July and 15 August, and there is also a fall about 25 March. It is generally at its lowest about 25 March and 15 July.

Turning Space

As the river is over 2 miles wide at Point Hollandaise and the river-craft are of shallow draught, there is ample turning space.

Accommodation for Vessels

Wharfage exists at the port for at least a couple of steamers, and, at the landing-place and companies' jetties, for at least three more, besides provision for securing barges and other small craft.

Stern-wheelers average 100-300 tons. The Belgians have steamers of 800 tons.

Detail

The depth alongside the quays of the port varies from 6 to $9\frac{1}{4}$ feet.

*Quays**Total Lengths*

The wharfage consists of

- (1) A pontoon at the public port, alongside which come the vedette boats connecting Brazzaville with Léopoldville;
- (2) a small quay at the port, used by stern-wheelers;
- (3) jetties of the C.G.T.A. and Société du Haut et du Bas Congo; and
- (4) jetty at the town landing-place,

but no details of dimensions are available.

*Lifting Facilities**Public Port*

One 10-ton hand derrick (not in a workable state).

One 1-ton steam crane (not in a workable state).

C.G.T.A.

One 15-ton hand-driven crane.

One 5-ton steam crane.

One 3-ton steam crane.

Lighters

A common sight on the Congo is that of a stern-wheeler or tug towing a train of from six to eight barges. These vary in size from 24 tons to 200 tons and upwards.

*Warehouses**Dimensions**C.G.T.A.*

Six storehouses, with a total floor space of 2,987 sq. yds.

Public Port

One uncompleted storehouse, with a floor space of 597 sq. yds.

Oil Tanks

There are no bulk storage facilities for petrol, oil, and lubricants.

*Port Facilities**Dry Docks and Floating Docks*

None.

Slipways

There are one or two small slipways belonging to the river companies.

THE TOWN

Description (Fig. 77)

Brazzaville is the capital of French Equatorial Africa, an airport and the seat of the Governor-General. It is also the post of a British consular officer, with the local rank of Consul-General, and in 1942 an American Consul-General was posted here. The total population is estimated at 25,000. In 1926 the European population numbered 432: in 1938 it was estimated at 900.

From the ferry-boat a sandy shore is visible, when the river is low, and through the trees the buildings of Brazzaville appear in scattered clusters, for a space of 3 miles. The bank rises gradually to a distant height of 150 feet, where the cathedral stands in a clearing.

An airman approaching from the coast and seeking the Brazzaville airfield sees several chequered patches in the vegetation, connected by roads. He may be able to detect three streams trickling into the river, and some swampy ground to the north-east. The first patch contains the lines of huts in the native village of Bacongou. Next comes the administrative quarter of Le Plateau, where, round the hub of Government House, are grouped the Place Brazza, club, post and telegraph office and telephone exchange, and other government offices, European market, court-house, hospital, medical school, Pasteur Institute, and some factories and bungalows. The masts of the wireless station, which rise behind, are inconspicuous from the air. Higher up the river the cantonments are visible, with the Senegalese village behind. This is the Chad quarter. The Mairie is situated at the east end of this quarter, and between the Mairie and the Mission an extensive area has been laid out in plots for future development. The next district is the commercial quarter of La Plaine containing factories, the depots of the Compagnie Générale de Transports en Afrique (C.G.T.A.), and other large trading and river transport companies and the office of La Banque de l'Afrique Equatoriale. A road from La Plaine leads inland to the native quarter of Poto Poto.

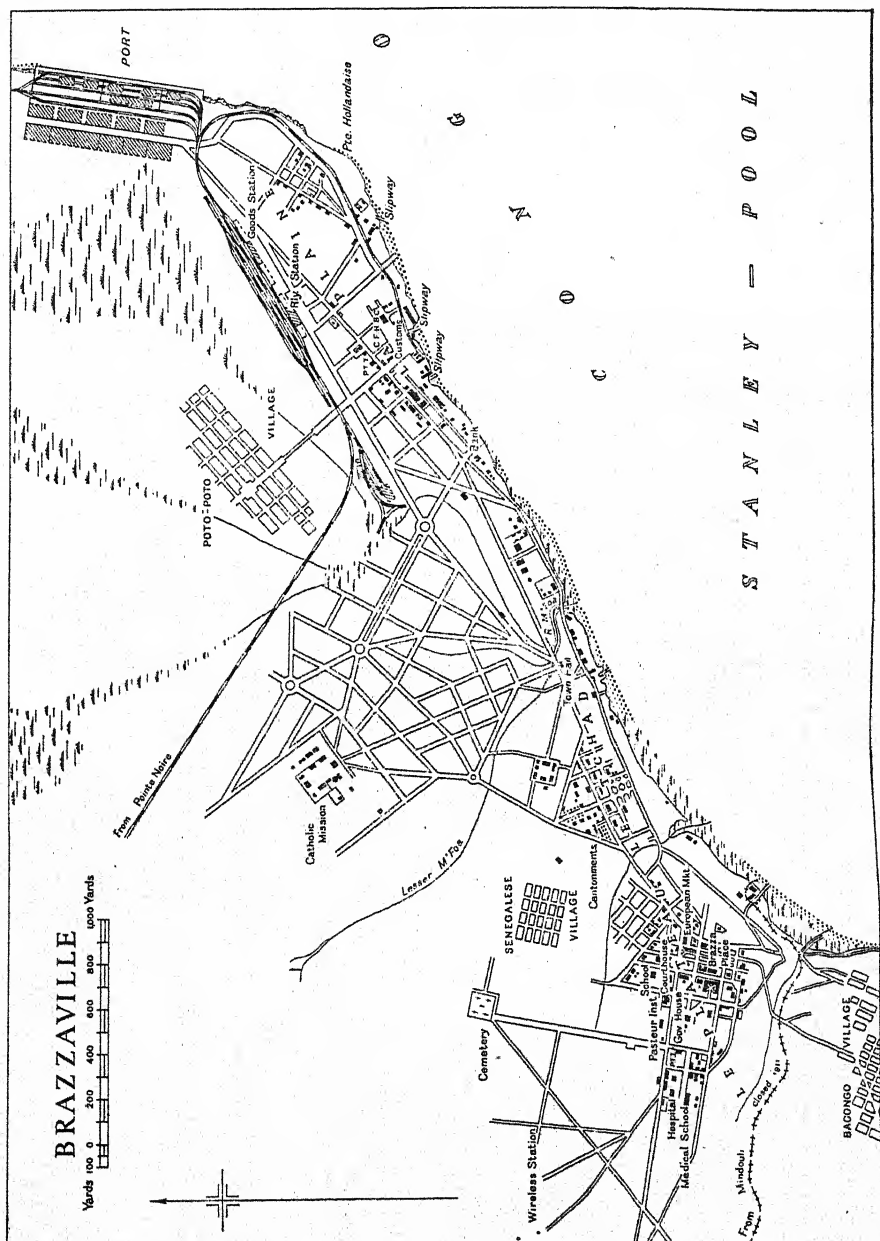


FIG. 77. Plan of Brazzaville

It was here that Sergeant Malamine kept his watch on the Congo, and it has been suggested that the village should be renamed after him. 'Poto Poto' is pidgin for mud, and is in use in Nigeria. No doubt the village got its name from the adjoining swamp. The passenger and goods railway stations are situated between La Plaine and Poto Poto. The Congo-Ocean Railway runs an hotel. Brazzaville has an electric light and power installation and a municipal water supply, as well as a principal store of the Intendance Service.

Trade

By treaty and convention equal rights in the trade of the Congo basin are guaranteed between nationals of members of the League of Nations.

Brazzaville is a transit port, where goods are transhipped from rivercraft into railway trucks, and vice versa. Traffic for Stanleyville, Bumba, and Aketi is subject to transhipment at Brazzaville, which taps the export produce trade of the Congo, Ubangi, and other rivers and supplies imported goods.

Petroleum

No statistics are available of the quantity of petroleum handled, but some indication can be gathered from the fact that in July 1941 2,600 gallons were in stock, and 42,850 gallons of different grades of aviation spirit.

Shipping

La Compagnie Générale de Transports en Afrique (C.G.T.A. or 'Galtransaf'), La Compagnie Française du Haut et du Bas Congo (C.F.H.B.C.), La Société France-Congo, and M. Louis Gitton operate on the Congo from Brazzaville. The C.G.T.A. is the most important of these. The C.F.H.B.C. runs transport as a side-line. M. Gitton has one boat for general work.

In 1942 the French river goods traffic between Brazzaville and Bangui was estimated as follows:

<i>C.G.T.A.</i>	<i>Tons Per month</i>
High-water periods	
Up traffic	2,500-3,000
Low-water periods (Feb.-May)	900-1,100
<i>France-Congo</i>	<i>Per year</i>
Up traffic	3,500-4,500
Down traffic	1,500-3,000

The maximum goods tonnage which could be handled, in a day, at the river port of Brazzaville might possibly reach 250 tons, but would probably be much less.

La Compagnie Générale Sanga-Likouala supplies the transport on the Sanga and its tributaries. The goods tonnage carried over these routes may be summarized as follows:

	<i>Max. annual tonnage</i>
Brazzaville-Ouessou	
Up traffic	2,700
Down traffic	3,300
Ouessou-Soufflay	800
Ouessou-Upper Sanga (Nola, &c.)	4,000
Likouala aux herbes-Epana	600

There is also the Belgian river transport, which exceeds the French, and, as navigation on the Congo is free to all nations, Belgian craft can load at Brazzaville and French craft can load at Léopoldville. The chief Belgian company, and the largest on the river, is the Office d'Exploitation des Transports Coloniaux ('Otraco') which, in 1939, carried:

	<i>Imperial tons</i>
Upstream	115,188
Downstream	<u>238,655</u>
TOTAL	353,843

Certain trading companies, such as Les Huileries du Congo Belge (controlled by Lever Bros. and Unilever), La Compagnie Van Lancker, and La Compagnie des Petroles au Congo, have fleets of their own.

In 1925 the total shipping available on the river was 20,000 tons, of which La Union Nationale des Transports Fluviaux or 'Unatra' (the predecessor of the 'Otraco') owned 16,000 tons and Les Huileries du Congo Belge, 2,650 tons. Ten years later the 'Unatra' tonnage was reported at 41,700 tons and the 'Huileries' at 8,250 tons. In 1941 the fleets of the various Belgian companies consisted of 1,381 steamers and barges, of a total tonnage of 219,490 tons.

Local Industries

Baking.
Brick-making.
Carpentry.
Ice-making plants.
Ivory-turning.
Repair shops (repair of boats, railway wagons, &c.).
Rubber and other produce (purchase and preparation).
Saw-mills.

*Communications**River*

The navigable depths have already been given (p. 378).

Canals

None.

Roads

N. Pangala (106 miles); Djambala (155 miles); Fort Rousset (425 miles); Makoua (470 miles); Ouessou (595 miles).
W. Mindouli (75 miles); Loudima (190 miles); Loango (320 miles).
Boko, via Kinkala (72 miles). Known as the 'corniche' road because it skirts the Congo as the corniche road on the Riviera skirts the Mediterranean.

Rail

Brazzaville to Pointe Noire (318 miles).

A light railway or tramway of 60-cm. gauge, which had been constructed between Brazzaville and the Mindouli mines, was closed when the Brazzaville-Mindouli section of the Congo-Ocean Railway was completed. It is shown in broken lines on the town plan of Brazzaville, as it is uncertain whether or not the line has been removed.

The port is connected with the railway system, so that trains can be run from quay to quay, between Brazzaville and Pointe Noire.

VIII. ANCHORAGES AND NEIGHBOURING PORTS

APPENDIX B contains short particulars of the minor ports or anchorages of the French Cameroons and Equatorial Africa and of certain ports or anchorages in Spanish Guinea, Portuguese Cabinda, and Belgian Congo which are situated on the coastline between the Cameroons river and the Congo.

APPENDIX A

Principal Trades and Professions established in Douala in 1937

<i>Description</i>	<i>No. of businesses</i>
Bakers	3
Banana curers	2
Booksellers and stationers	3
Butchers	2
Chemists	2
Cobblers	7
Coffee exporters	4
Cold-storage and ice factories	1
Contractors	4
Coopers	1
Dentists	1
Doctors	2
Electricity supply	1
Fishing and fish-curing	1
Hairdressers	1
Hotel-restaurants and cafés	6
Insurance companies	6
Ivory-turners	5
Joiners	3
Machinery (general)	5
Mattress-makers	1
Merchants—combined import and export trade	20
„ exporters (including one cattle exporter)	10
„ importers (including one boot importer (Bata))	11
„ retail stores	13
Newspapers	2
Photographers	4
Plantation companies	6
Plasterers	1
Printers	1
Shipping	11
Soap-makers	1
Solicitors and barristers (Avocats)	2
Tailors	26
Timber	4
Transport and garages	5
Watch-repairers	1

APPENDIX B

Anchorage and Neighbouring Port:

LONGUY (LONGJI; LONJI). FRENCH CAMEROONS.

Lat. $3^{\circ} 05' N.$, long. $9^{\circ} 58' E.$

Open roadstead.

Motor road to Kribi (12 miles).

British factory.

GRAND BATANGA. FRENCH CAMEROONS.

Lat. $2^{\circ} 48' N.$, long. $9^{\circ} 53' E.$

Open roadstead.

Landing-place (dangerous).

Motor road to Kribi (30 miles).

Telegraph.

Factories.

Missions (R.C. and American Protestant).

CAMPO. FRENCH CAMEROONS.

Lat. $02^{\circ} 22' N.$, long. $9^{\circ} 50' E.$

Open roadstead.

Custom-house.

Post and Telegraph Office.

Wireless station.

Factories.

Exports: ivory, rubber, ebony.

BATA. SPANISH GUINEA.

Lat. $1^{\circ} 50' N.$, long. $9^{\circ} 48' E.$

Open roadstead.

Landing-beach and pier.

Spanish administrative headquarters and military post.

Nueva Bata, $1\frac{1}{2}$ miles.

Motor roads to Bitam (136 miles); to Alembé (353 miles); and north to Ebolova (230 miles) and the northern road system.

Landing-ground for aircraft.

Factories.

Post, telegraph, and telephone.

Wireless.

BENITO. SPANISH GUINEA.

Lat. $1^{\circ} 35' N.$, long. $9^{\circ} 38' E.$

Open roadstead.

Landing-beaches.

Settlement at Punta de Arena (Joho Point).
Hospital (American Mission).
Wireless.

KOGO (KONGO). SPANISH GUINEA.

Lat. $1^{\circ} 05' N.$, long. $9^{\circ} 42' E.$
Anchorage in river, at mouth of river Kongué.
Spanish administrative headquarters.
Population: native, 200; European, 20.
Hospital.
Exports: timber.
Supplies: nil.

CORISCO BAY (BAHIA DE CORISCO). SPANISH GUINEA AND GABON.

Between lat. $0^{\circ} 40' N.$ and $1^{\circ} 07' N.$ and long. $9^{\circ} 20' E.$ and $9^{\circ} 40' E.$
Anchorage (good).

OWENDO. GABON.

Lat. $0^{\circ} 17' N.$, long. $9^{\circ} 29' E.$ (Pointe Owendo).
See Libreville.

SETTÉ CAMA. GABON.

Lat. $2^{\circ} 32' S.$, long. $9^{\circ} 43' E.$
Open roadstead.
Coastal bar and heavy swell. Landing (difficult): by surf-boat.
Customs.
Telegraph.
Factory.
Exports: timber. Logs are hauled laboriously from the beach to the ship by tow-lines.

The settlement is situated at the mouth of the Sounga, Simba, and N'Dogo (Ndogou or Setté Cama) lagoons, but entry from the sea is only by canoe. The N'Dogo lagoon is navigable by small craft, drawing 3 ft. 7 in. It is fed by the river N'Dogo, which is navigable to Bongo (43 miles).

MAYOUMBA (MAYUMBA). GABON.

Lat. $3^{\circ} 25' S.$, long. $10^{\circ} 39' E.$
Anchorages (3). Sheltered from south and south-east.
Open roadstead.
Coastal bar. Landing: by surf-boats.
Emergency airfield.
River Mayoumba, outlet of M'banio Lagoon:
Depth at mouth, about 5 feet.
Depth of lagoon, 26-49 feet.

Administrative headquarters.

Telegraph.

Wireless.

Rest-house.

Factories and bungalows.

Exports: timber.

Saw-mills (Société agricole forestière et industrielle pour l'Afrique).

Supplies: fish and vegetables.

Local tribe: Bavili.

LOANGO. MOYEN CONGO.

Lat. $4^{\circ} 39' S.$, long. $11^{\circ} 49' E.$

Roadstead (open to NW.).

Rollers. Landing: by surf-boat.

Motor roads to Pointe Noire (15 miles); Madingo (67 miles); Brazzaville (345 miles). Old caravan route to Stanley Pool.

Government station and factories, at Bouali.

Resident doctor. No hospital.

Telegraph.

R.C. Mission.

Exports: rubber and other produce. Former whale fishery.

Local tribes: Bavili, Bayombé, Bakamba, and Baloumbo (called collectively, Loango). Supply personal servants.

Fish, abundant; other supplies, scarce.

MASSABÉ (MASSABI) RIVER. CABINDA (PORTUGUESE).

Lat. $5^{\circ} 02' S.$, long. $12^{\circ} 02' E.$

Open roadstead.

Landing: by surf-boat or bar-canoe.

International boundary with Portuguese Cabinda.

Dutch factory.

French settlement and factories on Cayo (or Bafou or Grand Bafou)

Lagoon, 6 miles up river Loémé.

LANDANA. CABINDA (PORTUGUESE).

Lat. $5^{\circ} 12' S.$, long. $12^{\circ} 10' E.$

Open roadstead.

Landing (difficult): by surf-boats or canoes.

Government post and important trading station.

Mission station.

Exports: palm oil and kernels; rubber and ivory.

MALEMBO. CABINDA (PORTUGUESE).

Lat. $5^{\circ} 19' S.$, long. $12^{\circ} 09' E.$

Open roadstead.

Sheltered anchorage, for small vessels.
Heavy rollers. Landing in a cove.
Trading settlement.

CABINDA (PORTUGUESE).

Lat. $5^{\circ} 33' S.$, long. $12^{\circ} 12' E.$
Open roadstead.
Jetty. Good landing.
Motor roads to Madingo (N.) and Banana (S.).
Government station.
Factories (including a British factory).
Hospital.
Telegraph.
Wireless.
Fish and vegetables, plentiful: other supplies, few.
Exports: palm oil and kernels.
Repairs (small), possible.

BANANA. BELGIAN CONGO.

Lat. $5^{\circ} 58' S.$, long. $12^{\circ} 24' E.$
Anchorage, in creek.
Hotel.
Motor road to Madingo (192 miles).
Submarine cable.
Post, telegraph, and telephone.
Wireless.

BOMA. BELGIAN CONGO.

Lat. $5^{\circ} 50' S.$, long. $13^{\circ} 07' E.$
Berths alongside and in channel.
Floating dock.
Slipway.
Hotel.
Hospitals.
Post, telegraph, and telephone.
Customs.
Banks.
Missions.
Railway to Tchéla (68 miles).

CHAPTER XII

AGRICULTURE

(English names of crops and products have been used throughout, where they exist. Local, French, and botanical names are given at the end of the chapter.)

THROUGHOUT the territories we are dealing with, almost every family, or village, or individual, cultivates just enough for its or his own subsistence. The small surplus, if any, is bartered at the local market, perhaps for fish, perhaps for salt, or possibly for cloth or ironmongery. This barter is but incidental. There are the beginnings of export, and here and there growing townships have introduced market gardening. European plantation and supervision are introducing new and paying crops for the market. These are the exceptions which prove the rule.

Arabs, bringing with them the habits of the desert, are pastoral and despise agriculture, which, relegated to slaves in the old days, is now either languishing or entrusted to lesser peoples. Arabized Berbers, and other Hamitic folk like the Fulani, are cattle owners whose position is judged on the head of cattle owned. To them agriculture is no occupation for a man. Even amongst the Bantu of the Forest belt agriculture is left to the women, once the men have cleared the site.

Agricultural implements are of the simplest. The axe used for clearing has a blade of some 4 inches; the hoe is a small, short-hafted chopping tool, shaped like an adze, with which the surface is but scratched. Ploughs are just beginning to appear on European plantations. In view of the literature devoted to the agricultural developments and exports of the future it is important to remember that little has been done, up to the present, to change the habits of the people. A description of agriculture as it exists must, in the main, deal with how a village feeds its members. In many cases Nature itself provides the food, leaving to the native the work of collecting.

The great range of climate results, naturally, in very different kinds of farming. As has been pointed out, climatic zones run east and west, divided by parallels of latitude. It will be sufficient in this case to divide the whole into three, remembering that they merge into each other gradually, and are complicated by altitude (itself a powerful

climatic factor), so that a northern, cooler, drier zone may project south on an upland, whereas a valley may carry the moister, hotter

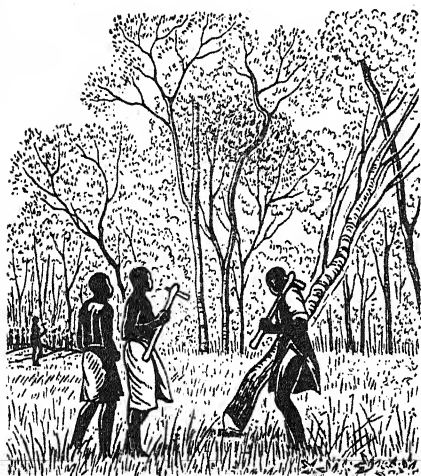


FIG. 78. *The man's share.*
Clearing the site



FIG. 79. *The woman's share.*
Hoeing, planting, and harvesting



FIG. 80. *The boy's share.* *Bird scaring*

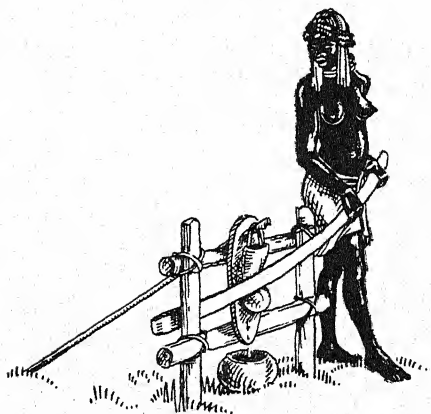


FIG. 81. *A native oil press*

climate of the south northwards. One further factor is worth mentioning before defining our zones. As has been stated, the population is a hotchpotch of perpetually shifting tribes and peoples, who carry with

them their ancestral customs. As an example, the Bamiléké of the central Cameroons are agriculturalists, whilst their neighbours—the Bamoun—are craftsmen. Local differences of this sort, and occasionally taboos, may introduce or forbid this crop or that.

The zones dealt with are as follows:

1. The Dry North (from Tibesti down to lat. 12° N.).
Here agriculture is negligible and stock farming predominates.
2. The Savanna (from 12° N. to 6° N.).
Both agriculture and stock farming, the latter decreasing as one moves south.
3. The Forest belt (south of 6° N.).
Agriculture important, stock farming all but impossible, and wild fruits and food products abundant.

Within each zone the main headings are stock farming, game and fish, agriculture, and natural products.

Description must end, rather than start, with European intervention and the beginnings of an agricultural economy.

NORTH OF LATITUDE 12° N.

Stock Farming

Delta crop farming is unimportant to the north of a line running approximately through the Shari, except in the shore dunes of Kanem, and in the occasional oases, such as Largeau and Ounianga. Otherwise stock farming is the whole basis of native life. In most parts the natives are of necessity nomadic or semi-nomadic, and there is a general movement northwards preceding the rains, to avoid the fly, and southwards again after them. The search for pasture is also a search for trade, since products are still distributed along the caravan routes.

The chief stock animals are donkeys and camels, goats and sheep, cattle and horses. Their numbers in this and the savanna region were estimated, in 1939, as follows:

Cattle	.	.	.	2 to 3 million	Horses	.	.	.	.	100,000
Sheep	.	.	.	$2\frac{1}{2}$ to 3 million	Donkeys	.	.	.	.	100,000
Goats	.	.	.	$2\frac{1}{2}$ to 3 million	Camels	.	.	.	.	80,000

These figures are, however, nothing more than a very wide approximation. The area is enormous, officials are few, and cattle owners nomadic. The census is often successfully evaded since taxation rests upon assessment. Even figures given below for Chad territory are reckoned as being but 50 per cent. of the actual numbers,

for, aside from the considerations just mentioned, the list does not include cattle, horses, and camels under three years old, on which no taxes are levied.

Number of Stock, in thousands, on which Tax was paid during 1941 in the Territory of Chad

<i>Subdivision</i>	<i>Horses</i>	<i>Cattle</i>	<i>Donkeys</i>	<i>Sheep and goats</i>	<i>Camels</i>
Ba Tha	4.6	188.6	7.8	179.3	9.1
Baguirmi	1.2	28.2	1.4	35.1	..
Bas Chari	3.6	99.8	4.4	103.7	..
Borkou-Ennedi-Tibesti	0.7	7.8	5.7	69.2	25.9
Kanem	6.5	175.1	9.6	78.0	11.9
Mayo Kebbi	4.5	34.3	1.5	63.1	..
Ouadaï	8.0	201.0	29.2	176.2	24.1
Salamat	0.5	13.7	1.2	4.0	..
TOTALS	29.6	748.5	60.8	708.6	71.0

Donkeys are kept, often in semi-liberty, all over this region. Descended from the wild asses of Tibesti, which are still numerous, they are naturally suited to the local conditions and have a high resistance to fly bite. In spite of their small size, they carry a heavy load, and are much used as pack animals. Especially prized is the Rifai, or Egyptian ass, which is rather larger.

Camels are the most important animals of this zone. Generally speaking they do not flourish south of 15° N., though in the dry season they may be brought as far south as 10° N. in search of pasture. The larger racing camel, some 7 feet high, is the aristocrat of the camel world, pure bred, pampered, and highly valued: the pack camel is a smaller animal, but still larger than the mountain camel of Tibesti, which is slight, long-legged, reddish, and nimble as a goat.

Goats and sheep exist in large numbers all over the region. Though there are larger breeds, most of the goats are small, weighing only from 60 to 90 lb. The sheep are hairy rather than woolly and difficult to distinguish from the goats. Both are eaten, especially on ceremonial occasions. Most of the milk is made into butter or cheese: it is rarely used as a drink, except for young children. Skins, sewn into bags, are used for carrying water, but the majority are cured, either with the hair still on for rugs and coverlets, or, scraped and dyed, for footwear, bags, and cushions. There are wild sheep in Tibesti.

Large numbers of cattle are to be found all over the south of this area, and are used for pack as well as for dairy farming. The different

breeds are often severely localized: the white cattle of Kanem, for instance, will not thrive away from the marshes of Lake Chad. Horses are fairly numerous, and are used for riding, not for draught. Ownership of a horse is a sign of social superiority and is usually confined to rulers and their retainers. Cattle and horses predominate in the south, as do camels and donkeys in the north.

Game and Fish

Wild birds and game figure largely in native diet especially in the wet season when they migrate to the north. Fish from Lake Chad are also a staple item of both diet and trade.

Agriculture

As was stated earlier, crop growing is only on a small scale, and in Borkou-Ennedi-Tibesti is on the decrease since slavery was abolished.

In Kanem wheat and vegetables are grown, and oases, which can support a sedentary population, produce dates and cereals, tobacco, vines, figs, and such vegetables as potatoes, tomatoes, melons, pumpkins, and pepper. Irrigation by *shadowufs* extends cultivation along the ouadis.

Of these crops dates are by far the most important. No precise figures of production are available, but a traveller in Tibesti recently estimated the total number of palms in thirty oases of the Bardaï-Aouzou area at 40,000, in addition to the many smaller palm-groves of the Miski and Yebbigue valleys. The total production of dates in Tibesti may be put at 2,000 tons per annum. There are also extensive plantations in Borkou, especially between Aïn Galaka and Largeau, and at the Ounianga oases, but the Borkou date has not so high a reputation as that from Tibesti. The first dates are gathered about May, and the last in September. They are usually eaten crushed with butter or milk, or mixed with the seeds of colocynth (*see below*) or flour.

The cereals grown are chiefly millets, wheat, barley, and rye. Wheat is sown in November or December, harvested in March and followed by millet, barley, or rye. The various vegetables are grown in succession throughout the year.

Natural Products

In these desert regions there is no extensive tree growth and only a seasonal cover of herbs and open grass, but, even so, natural products are important to the natives. The baobab tree (northern limit 15° N.)

is one of the most useful. Its fruit pulp is used as a seasoner, its young leaves as a vegetable and for horse fodder; the seeds are pounded into meal; the inner bark provides fibre and bark cloth; seed and bark ashes are made into soap and fertilizers, and all parts make various medical concoctions. 'Mouni' is the Arabic name for a plant growing among the rocks of Tibesti which gives a coarse flour that looks like coal dust, while the bitter seeds of colocynth, a gourd with orange-like fruit, are edible after long boiling, and the pulp of the fruit is charred and used in the preparation of gunpowder, tinder, and fuses. There is also a water liane which can be cut into lengths and drained of its sap for water. Some varieties of fig which grow in the south of this zone are edible. The most widespread trees of the zone are the acacias. Their fruit pods and bark provide the tannin so useful for the hides of a cattle country and the leaves and young pods are used largely in native medicines. Fodder for camels and other stock is obtained from grasses, of which bur grass is the most important, from the halophytic vegetation in saline areas, and from various bushes of which 'had' and salt bush are most widespread. The seeds of many grasses are gathered, or even collected from the nests of harvesting ants, and eaten raw or pounded into meal. Near Lake Chad the salt bush supplies a vegetable salt.

THE SAVANNA

This region covers the south of the Thornland zone and all the Grass Woodland zone of Chapter V.

Stock Farming

The camel is not native to the area, but is met with occasionally as part of a seasonal migration in search of pasture, or of a caravan trading from the north. Donkeys, too, are less common, being found, as a general rule, only to the north of lat. 9° N.

It is in this zone that cattle do best. Grazing is better than in the zone to the north, tsetse-fly rarely penetrate into it from the south, and the ruling castes, of Arab or Hamitic origin, are cattle owners almost of necessity. Dairy farming is still exceptional, however, though butter and cheese are staple items of diet. A small dairy at Massakori provides for European needs. Two main types of cattle may be distinguished—the 'Zebu' with a hump on its withers, and the humpless 'Taurin'—both large, averaging 12 to 16 cwt., and both with big horns, often lyre-shaped. There is a considerable trade in live animals and in meat at local markets, and hides figure largely in

domestic economy as well as amongst the exports. There is a growing market for the cattle of this zone in the towns of the Forest belt.

Better pasture and the absence of tsetse-fly make this zone the best also for horses. They are, however, seldom used for draught. The two most valuable breeds are the Arab and the Dongola or Fulani, both imported. Both breeds are usually between 14 and 15 hands high, fast, and capable of withstanding very dry conditions. However, though hardy in that respect, they suffer rather severely from the bite of horse-flies, and neither type does well in low swampy plains, which are the chief fly areas. Rather more numerous, especially in south-west Chad, is a smaller indigenous breed, from 10 to 12 hands high, which is called by various names—'Logone' for the larger animals found in the lowlands; 'Laka' for those in the highlands; 'Mbai' for the smallest. In spite of their smaller size, this breed is hardy and robust. Horses do not seem to be indigenous to Ubangi-Shari, but some chiefs have imported them and they are now to be found even in eastern Ubangi-Shari and the upper Sanga valley. Farther south their use is prohibited by tsetse-fly.

As the area of strong Moslem influence is left behind to the north, pigs become increasingly important and are to be found, living semi-wild, in most villages. Sheep and goats again exist in large numbers all over the region and have the same appearance and uses as farther north. In addition, every village will provide small scraggy chickens and their eggs, though the natives do not normally eat the eggs.

Game and Fish

Although stock flourishes in this zone, wild life supplies a large part of native diet. Though hunting is carried on at any season, as food is needed, the main hunting period, one of great rejoicing and feasting, comes in March and April, when the bush is fired and the terrified game is easy prey. The meat and hides so obtained form a valuable addition to the resources of a tribe, and game drives were often carried out on so huge a scale that the administration has felt it necessary to define tribal hunting areas, and established game reserves such as those at Ouasa, Ouanda Djale, and near Djemah.

For riverine tribes fishing is often the main occupation. Elsewhere, birds, tortoises, bats, lizards, snails, mussels, and white ants are all collected for the pot.

Although bee farming, as an occupation, is unknown, the collector of wild bee honey and beeswax is as common here as throughout the rest of Black Africa.

Agriculture

The bulk of the population of this zone is not nomadic, nor exclusively pastoral, but lives on a mixed farming in which farmyard manure is practically never used. South of 10° N. agriculture becomes the most important occupation, whilst even nomadic tribes in the northern belt sow crops in the wet season, leaving the fields untended till the harvest. Since no fertilizer is used, save the ash of the burnt grass, soil is quickly exhausted. As is usual in Africa, land, once used, is left to fallow, agriculture shifts on, and individual tenure is exceptional. The family or tribe is the unit and the chief, or headman, the organizing and directing authority. In the course of a few seasons a village may have moved some miles from its former site. As has been stated, men clear the site and women hoe, sow, weed, and harvest. Children act as bird scarers, and their raised platforms, generally shaded with a thatch of reeds and grass, are a familiar sight in the fields. The village, naturally, does not demand much of any one commodity, and all the various crops, in small quantity, are to be found side by side, at different stages, in the same field. The general picture is that of a large untidy allotment.

No accurate statistics are available for crop acreage, and few for production, other than the following table which gives the crops from Chad territory for 1940, in thousands of tons.

<i>Subdivision</i>	<i>Millet</i>	<i>Cotton</i>	<i>Ground-nuts</i>	<i>Earth peas</i>	<i>Beans</i>	<i>Manioc</i>	<i>Maize</i>	<i>Sweet potatoes</i>
Logone .	100	9.7	3.0	5.0	4.0	3.5	0.3	1.0
Mayo Kebbi .	75	9.7	3.5	0.8	1.5	0.5	0.1	0.8
Moyen Chari .	60	3.3	5.5	7.5	6.0	2.0	0.2	0.4
Baguirmi .	30	0.4	1.5	1.0	1.2	2.0	0.1	0.4
Salamat .	35	..	0.3	0.1	..	..	0.1	..
Bas Chari .	30	..	1.0	..	0.7	..	0.3	..
Ba Tha .	65	0.1	2.0	0.5	2.5	..	0.2	..
Ouadaï .	70	..	3.5	0.9	3.0	..	0.2	0.2
Kanem .	18	..	..	..	1.2	..	0.4	0.6
TOTALS .	483	23.2	20.3	15.8	20.1	8.0	1.9	3.4

In every case combined figures for northern Cameroons and Ubangi-Shari would give a larger total.

Millets supply the main food crop throughout the area. Maize and wheat are the other cereals and are grown in smaller quantities. Sesame and ground-nuts are grown for oil, and other major crops are the pulses, tubers of all kinds, indigo, coffee, and cotton.

The millets are cultivated all over the Sudan, for though their

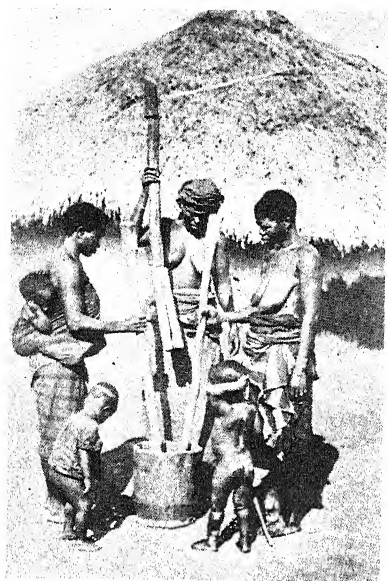
small grains do not give a very heavy yield, nor are they as valuable a food as other cereals, they will thrive on poor soils and are tolerant of considerable climatic variations. The commonest variety is sorghum or large millet which may grow to 10 or 12 feet high. Since, however, it takes rather long to ripen, and only thrives with a fair rainfall, various smaller types are frequently interplanted, as a catch-crop, to harvest before sorghum or if it fails. Such are finger and bulrush millet, and hungry rice.

Milletts are sown from May to July and harvested in the dry season, from November to January. The ears are usually first hung up on hurdles to dry, then trodden and winnowed by women, and the grain ground in primitive mortars. If the flour is to be used for food, it is made into pasty balls or porridge, to be eaten with meat: if for drink (and many millets are grown specially for making millet beer), the grain is allowed to germinate, and then put through a complicated process of simmering in water, decanting, and fermenting. The resulting beer, which has many names, varying according to the locality, is pleasant enough when fresh, and is drunk especially on ceremonial occasions. The practice of beer-making is, however, discouraged by the government, as millet must be the chief standby in case of famine. At present it is the only food normally stored by natives, and granaries of various shapes, perched up on rocks or posts, are to be found in every village. Such stores as are made have, however, proved inadequate in a really bad season, and recently orders have been issued for every village to store larger quantities.

Maize is not grown in such quantities as millet, for it is more exacting in its requirements: most varieties will not survive drought, and the plant demands not only a rich soil but also much weeding in the early stages of its growth. Though it can be dried and used for flour, it is more often eaten fresh—the grains boiled in water, or the cob roasted in embers. A harsh beer is also made from the grain, while the stalk and leaves are a valuable source of fodder.

Wheat also is an exacting crop, and requires more moisture than the normal rainfall provides. It is therefore grown only in small quantities, and mainly in the Logone-Shari valley where it can be irrigated.

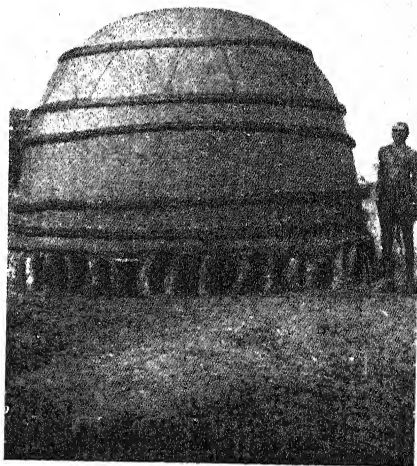
Vegetable oil forms an important item in native diet, and in this zone sesame and ground-nuts are the chief cultivated source. Sesame is a herb from 1 to 3 feet high often grown in rotation with yams and millet. Its small flat seeds are rich in a tasteless and nearly colourless oil which is used in the same way as ground-nut oil. This



48. *Grinding Millet*



49. *Bullrush Millet Store*



50. *Granary*

latter is derived from the seeds of two plants—ground-nuts and earth peas. Both of these are annuals grown all over the Sudan, both have the curious habit of ripening their pods underground, and both are particularly useful in their ability to thrive on light sandy soil which they enrich for other crops when grown in rotation. Harvesting consists of raking the pods from the soil, after first removing the dried and withered stems. The two or three nuts contained in the pod are rich in oil and are used in a variety of ways—the whole nuts are roasted to be eaten as dessert or in stews; the oil, extracted by boiling or crushing, is used for lighting and for frying, and as the chief ingredient of a soup; the paste remaining is fried in oil or roasted.

Pulse is a generic term for beans and peas, and in French Equatorial Africa there is an almost infinite variety giving a crop all the year round. Perhaps the commonest are the cowpea, cultivated in the drier savanna lands, and the different types of the butter bean, which are grown in larger quantities near the forest regions. Their most general use is dried to serve as an ingredient of soups and stews, or ground into a paste and made into cakes and balls or a sort of porridge, but the young pods and leaves are also eaten as a green vegetable.

The other main food crop is supplied by the many varieties of yams and other tubers, which are grown everywhere. Amongst the tubers special mention may be made of three: the Madagascar potato, a creeping herb whose stems produce numerous small whitish edible tubers when they touch the ground; 'dazo', a plant 2 to 3 feet high, producing tubers very like European potatoes; and the sweet potato, red, yellow, and white, in a wide range of shapes, sizes, and quality. All are usually planted at the beginning of the rains, that is in May or June, often on ridges, and the tubers dug after 5 or 6 months, in October or November. If irrigation is possible, they can, however, be grown in succession all the year. They are chiefly used cut up, or mashed, and boiled, or sliced and fried in oil, while the starchier varieties are made into flour.

Native cultivation of cotton is also widespread here, where absence of frost and a regular dry period after the rains afford ideal climatic conditions. It was estimated that about $2\frac{3}{4}$ million acres were under production in 1937, with approximately 50 million plants, and the figures in the table of Chad production suggest that the crop is not inconsiderable. Brightly dyed native cloth is common at local markets, and there is a considerable and increasing export.

Tobacco is to be found widely distributed, but the plant is given little attention, and only among a few tribes has the rather inferior leaf more than a local market. The natives chew tobacco, usually mixed with salt, besides smoking it and using it as snuff. Varieties of hemp are also grown for smoking, but the practice is officially discouraged.

In the lower Logone and Shari valleys some indigo is produced from shrubs some 3 to 4 feet high, whose young shoots and leaves are plucked and pulped. After fermenting, this pulp is put into water with a lye (often the ash from burning a mixture of goats' dung, millet chaff, and dye-pit sludge) and left for 4 or 5 days to mature in the dye pits. The mixture is then stirred and aerated, and the cloth is dyed by alternately dipping into the pit and drying in the sun.

Coffee trees are indigenous in the southern half of the region and the berries were widely used by the natives before European penetration. Since 1930 a more systematic production from plantations has been encouraged. Further details will be found on p. 408 below, under 'European Intervention'.

In addition to the major, and native, crops mentioned above, many others have been introduced by missionaries or settlers, and are grown principally near towns. These include pepper, ochro, pumpkins, bananas, sugar-cane, rice, castor oil, mangoes, sapphoes, barbadines, pine-apples, oranges, tomatoes, and onions, to mention only a few.

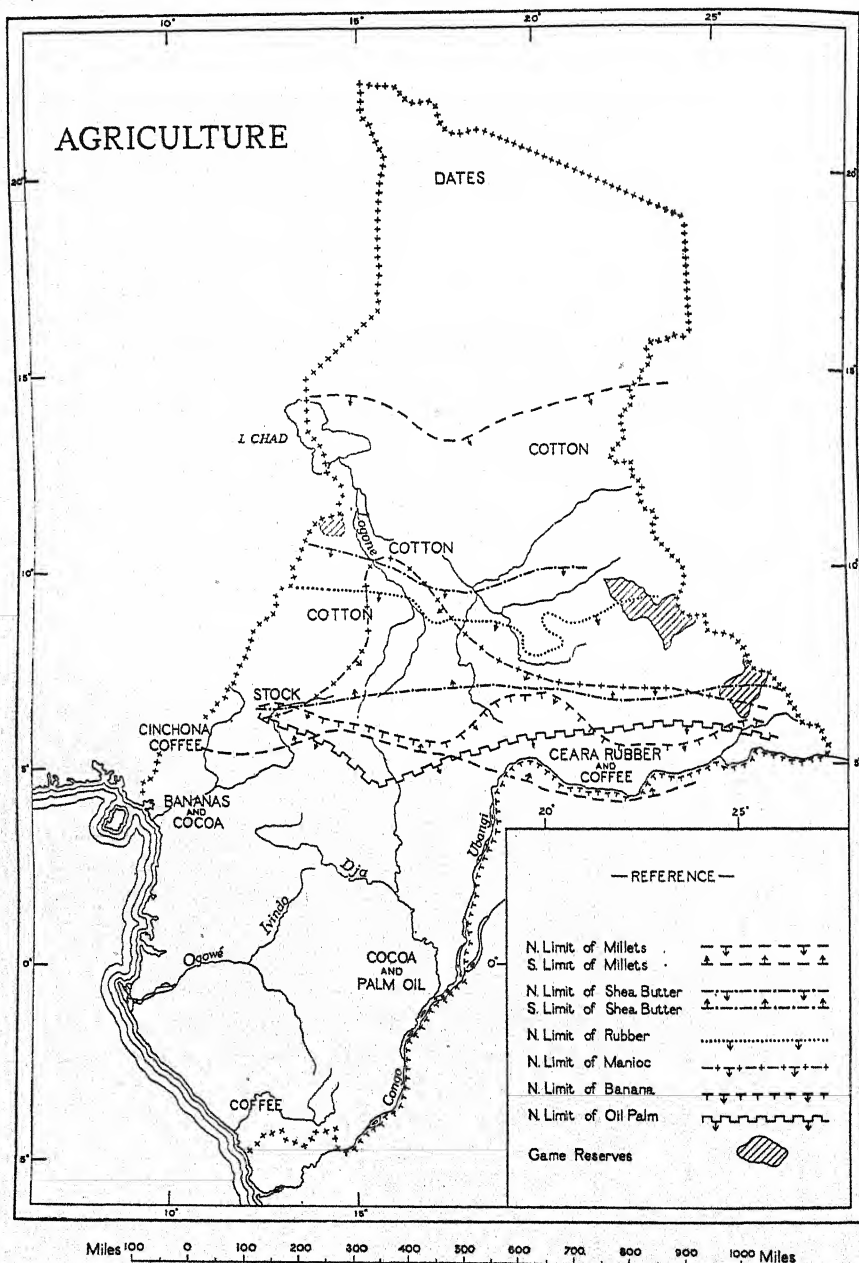
Pepper comes from a biennial shrub, which is planted in abundance round most villages, and from wild plants. Ochro is also common; its fruit pods form a common ingredient of soups and stews, and the leaves are used medicinally or as a green vegetable. Pumpkins of many varieties, shapes, and sizes are mostly edible. Some are specially cultivated for use as gourds, bowls, and dishes, and will often be found with decorations cut or painted on them. Bananas are found in this zone, but are more common in the zone to the south. Sugar-cane is widespread, growing on moist ground, and is cut to be chewed as a sweet. Rice grows wild in Baguirmi, Fitri, and Ouadaï, but is cultivated only in small quantities, though large areas of the Shari basin are very suitable to its requirements. Castor oil is obtained from a widely distributed shrub about 10 feet high, which grows wild or in a state of semi-cultivation. The seeds yield the oil, extracted locally by crushing in mortars or by boiling, and used as an unguent, and also medicinally.

Natural Products

Many trees of this region add directly to the food supply. One of the most characteristic of them is the shea butter tree. It is to be found widespread in well-drained dry areas. Its corky bark is a natural protection against fires. Shea butter (French, *graisse de karité*) is the name given to the oily mass prepared from the kernels of the fruit. It appears on the market in the form of yellowish loaves, rather like oily cheese, and is used by the natives chiefly for cooking, but also as an illuminant, an ointment, a soap, and a hair dressing.

The African fan palm serves as many uses. Oil is got from the fibrous pulp round its seeds; the fruit kernels are edible when young; the flower stocks yield a sweetish wine, and the leaves are used for thatching, hats, fans, brushes, and mats. The silk cotton tree has oily seeds. In the dry season, when the tree itself is leafless, the fruits burst and woolly fibrous material, like kapok, escapes, to be used as stuffing for cushions and quilts. These two, the African fan palm and the silk cotton tree, flourish in the southern parts of the zone. Three other trees, common especially on the desert border, are the doum palm, the ber tree, and the salt bush tree. The first is distinct from all other West African palms in its forking stems. Its uses are much the same as those of the African fan palm. The leaves of the second are a valuable source of fodder; its fruit is edible, and its bark and roots are used for native medicines. The third is valued chiefly for its pungent leaves and berries, which are chewed for their sustaining properties. Their cress-like taste has given the tree another common name, mustard tree. Natives use the roots for cleaning their teeth. A very typical savanna tree is the African locust bean. Its seed pulp serves as a meally powdered biscuit. The kernel is boiled and crushed to a paste. The whole fruit is used as fodder and the leaves for manure. The egg plant is an annual shrub, and, more often than not, native stews will contain some of its oval, waxy, white or violet fruit. Of all the many plants used for medicinal purposes, swallow-wort and christmas bush are probably most widely employed. Although the use of European soap is now spreading inland, most natives still make their own locally; and one of the many trees whose seeds are so used is the crabwood, very common in the gallery forests.

Cultivated or wild, the food production of this zone seems considerable, but famines are unfortunately still frequent. Locusts are a scourge, and crops less liable to their attack have been introduced. For instance, manioc and other tubers are now much more widely

FIG. 82. *Distribution of main crops*

cultivated in northern Cameroons and the Logone valley than they were some years ago.

THE FOREST BELT

Certain highlands project southwards into the forest belt and carry the stock, crops, and products of the savanna with them. These same conditions will also be found wherever, on crest or upland, the forest thins out or disappears. On entering the forest itself conditions change radically. Clearing becomes a matter of real difficulty; dense shade and tree roots diminish results, and the tsetse-fly forbids all stock farming.

Stock Farming

Certain tribes raise a few cattle, pigs, and sheep, up the Niari-Kouilou and Alima valleys, and most native villages can provide kids and poultry for consumption.

Game and Fish

Fishing is important along every river, and locally along the coast, but hunting, broadly speaking, is a minor activity, except among the Pygmies, and is undertaken usually on the advice of the witch-doctor. Birds and such small animals as bats, snails, lizards, and ants are caught and eaten.

Agriculture

Considering the area available, crop production for export is small, except in southern Cameroons, where longer contact with European traders, the vigour of German policy in the past, and a denser population, are factors which contribute to a more intense production. Home consumption is still, however, the main factor. Forest clearings show the same allotment mixture as do those of the savanna, and the constant migrations are the same. Certain tribes cultivate considerably greater quantities of a particular crop than their neighbours: for instance, the Pomo are great maize eaters, and the Batéké carry on a considerable trade in tobacco with the tribes around, and even into the Belgian Congo.

In this zone manioc and bananas take the place of millets and, with tubers, supply the main food, while maize, beans, and spices are secondary food crops. Manioc, sometimes called cassava, is produced from a shrub about 6 to 8 feet high, with tuberous roots that grow in clusters weighing 20 to 30 lb. There are two

main varieties of the plant—bitter manioc and sweet. The former is the easier to grow and more widely cultivated, but care must be taken to soak the long stout roots for at least 24 hours before eating, as they are poisonous. The roots of sweet manioc are shorter and slimmer, and can be eaten as soon as dug. This crop can be cultivated with a minimum of effort and is affected by neither drought nor locusts. Manioc is propagated from cuttings off old stock, at the beginning of the wet season, and if the roots are to be cooked and eaten as we eat potatoes, they are dug after about 5 to 6 months, though, at risk of becoming woody, they may be left in the ground until wanted up to 2 or 3 years, and are frequently so left, if they are to be made into meal. This meal is prepared by crushing the soaked roots into an oily pulp, which is allowed to ferment under pressure for some days. The remaining moist pulp is dried, sifted, and ground, and the meal, usually called 'fufu', baked as bread, or boiled as dumplings in stews and soups. In some districts manioc roots are split and sun-dried, and in this condition they can be stored for a considerable time.

Maize is frequently planted as a catch-crop between the manioc.

Bananas and plantains require little attention, though shade must be provided in the early stages of growth, and care taken to remove superfluous suckers; two or three only are left to produce the plants for the next season, as the tree is cut down when it is cropped. Plantains are more often grown than bananas, which are a relatively recent introduction. Bananas are usually eaten uncooked, while the larger plantains are gathered green and eaten cooked—roasted under cinders, fried in oil, or boiled and mashed into paste.

Tubers play as important a part in native diet as manioc. All the varieties of yam and potato mentioned as growing in the savanna are to be found here, and also taro, or coco yam, which must be cooked or repeatedly washed before eating.

Natural Products

Vegetable oil also enters largely into native diet and most of it is obtained from the fruit of various forest trees. The chief of these oil trees is undoubtedly the oil palm, many varieties of which grow everywhere in the forest, and yield both oil and wine. One estimate, made in 1939, put the area of oil-palm stands at about 20,000 square miles with about 100 million trees being exploited. Most are wild, but there are important plantations in the Likouala-Mossaka valley, and many smaller ones as at Dongou on the lower Ubangi. The

adult tree of 10 to 13 years varies in height from 40 to 60 feet according to type. Eight to ten clusters of orange-red 'plums' are produced annually, each cluster weighing about 50 lb. Beneath the outer skin of the fruit is a fibrous pulp surrounding a kernel in a hard woody nut, and it is the pulp and the kernel which yield the oil: the former is the chief native source of oil, the kernel mostly being traded to Europeans for export. In the preparation of oil the fruit is first separated from the cluster, and, after cleaning, boiled in water. The oily mass so produced is then transferred to a trough which contains cold water, and when cool is pounded to separate the oil. As this rises to the surface it is skimmed off and sieved, and finally the crude oil is heated again to remove all trace of water. It has a nutty flavour and pleasant smell. If the kernels are used by the natives they are removed from the shell, and pounded in a flat mortar, from which the oil is led off to a container. Palm wine, very popular with the natives, can only be made at the expense of the tree itself, and is forbidden by the authorities in consequence. It is, however, made in quantity.

There are many other trees whose fruit, seeds, and kernels provide oil. The oil-bean tree is widely distributed. The beans, called 'owala' or 'ovala' in French Equatorial Africa, are contained in large pods, and are frequently eaten after roasting or boiling, but as a condiment rather than as a staple food. In Gabon they are sometimes added to 'dika', the paste obtained by grinding and cooking the oil seeds of the wild mango. 'Dika', or 'oba' to give it another common name, is frequently eaten with fish, meat, or plantains.

Similar use is made of the oil from beans of the djave nut and Gabon nut trees, while the equivalent of shea butter is supplied by the fruit of the incense tree and the meni oil tree. All are widespread on the slopes up to the plateau, and the last-named is to be found in quantity on the lowlands round the Cameroon river.

Coffee is an indigenous wild product. It grows near Lomié and Yaoundé in the Cameroons, and over the southern half of French Equatorial Africa. It prefers the highlands which emerge here and there from the forest itself. In Ubangi-Shari it is known as Shari coffee; in Gabon, the Kouilou valley, and on the Mayombe plateau, as Congo coffee. The natives make little use of it, however, and collection from the scattered bushes adds time and cost to production.

In contradistinction to the natural food products and the subsistence crops grown for home consumption, wild rubber was the main natural product at the times of the Silent Trade (*see* p. 228) and

continued to be so until the growing supplies of plantation rubber from the Far East knocked the bottom out of the market. Wild rubber is got from the latex of various trees, lianes, and bushes. These grow everywhere in the forest belt, but are scattered widely and unevenly in that dense and varied growth. Collection is laborious, and ruins, for some five years, the plants it taps. The nearest and easiest areas are worked out quickest, but at this present time, after some years of recuperation, there are important stocks of this valuable wild product available if necessity demands.

Within the actual forest grow many other trees which contribute directly to the housing, feeding, and village industries of the tribes concerned.

EUROPEAN INTERVENTION

During the early years of penetration and conquest the few and overworked administrators had neither time nor opportunity for intervening either to improve the native food supply or to teach the natives to grow for export. The 'Concessions', mentioned in Chapters VIII and IX, undoubtedly did make a beginning, though their immediate objects were to exploit existing vegetable and mineral products rather than to organize plantations. In the Cameroons German measures were more successful. The country was better suited for development, the natives more in touch with European civilization, and Germany itself had far fewer colonial areas on which to concentrate. M. Sarraut's *mise-en-valeur* policy (p. 242) started a new era. Communications improve, transit is cheaper and easier, and solid beginnings are now beginning to bear fruit.

Stock Farming

The European Société Pastorale et Commerciale Africaine has herds under its control at Ngaoundéré, Nkongsamba, and Djutitsa (near Tchang), which increased from 30,000 in 1930 to an estimated 600,000 in 1939.

Pedigree stock has been introduced. Montbéliard cattle and stallions have been brought from France and are to be found at Ngaoundéré, Nkongsamba, Tchang, and at various points in Ubangi-Shari. Tripolitan, Crau, and other breeds of sheep are improving local varieties. Berkshire pigs are to be seen on the Tchang co-operative farm. Stud farms have recently been established at Foubam, Golombe, Biparé, and Moussoro for horses, and at Kounden for pigs, while at each place large pastures have

been taken in under control. Experiments have been made in cross-breeding local cattle with West African stock, alleged to be immune from trypanosomiasis, and large numbers of defective males have been castrated. The selling of meat has been forbidden except at regular markets, in order to control and improve methods of slaughter, skinning, and tanning.

In the matter of pasture, it is often the case that the richest pasture is not the safest grazing land, owing to the presence of fly. Steps are being taken to improve, and water, the safer pastures, especially along the cattle routes from the grass country south to the forest towns. In the past losses of cattle moving 'on the hoof' to the abattoirs of the south have been heavy; but losses have now been reduced to a mere 2 or 3 per cent. For instance, equipment on the Ngaoundéré-Yaoundé route included, in 1937, four first-aid posts in the forest belt south of Yoko, eight watering posts, and a special ferry across the Sanaga river. Routes have similarly been surveyed from the highlands round Bamenda and Banyo to Douala Edéa and as far south as Brazzaville.

The supply of meat for the towns of the south is, however, difficult to manage by these long journeys. On some of the uplands, with special precautions, Europeans have succeeded in keeping small numbers of horses and cattle in or near the towns, and there is one important stock region in northern Moyen Congo, a rough triangle based on the Yadé plateau with its apex at Bangui. Here there are some 250,000 cattle, 60,000 sheep, and 5,000 pigs, and efforts are being made to extend the area eastwards along the river Ubangi. The Batéké plateau is capable of maintaining stock, for the Compagnie Minière du Congo once possessed about 750 cattle and 300 sheep at Renéville, but up to date little European development has taken place.

Agriculture

Hardly a village of the forest belt from French Guinea to the Congo failed to hear of the wonderful results of cocoa culture in the Gold Coast or failed to follow, as best it could, in the same successful pursuit. Cocoa requires the same continuous shade and moisture as does the tsetse-fly, though it profits from rich alluvial or volcanic soils. Introduced into the Cameroons in the twenties, its export reached 27,000 tons in 1937. In the early thirties it spread south. Most of the production of the country comes from plantations of the Trinidad and São Thomé varieties along the coasts of Cameroons,

Gabon, and Moyen Congo, but recently large plantations have been established in the Likouala-Mossaka valley, and near Yaoundé.

Trees are planted at intervals of 4 to 5 yards, that is about 250 trees to the acre, and full production is reached at the fourth or fifth year, with a yield of 800 to 1,000 lb. per acre. The main crop is gathered during the period from October to January, with a smaller crop in July. Provident societies have established fairly strict control over cultivation, and education among the natives in soil culture, correct pruning, and proper preparation of the beans is resulting in increased production of higher quality cocoa.

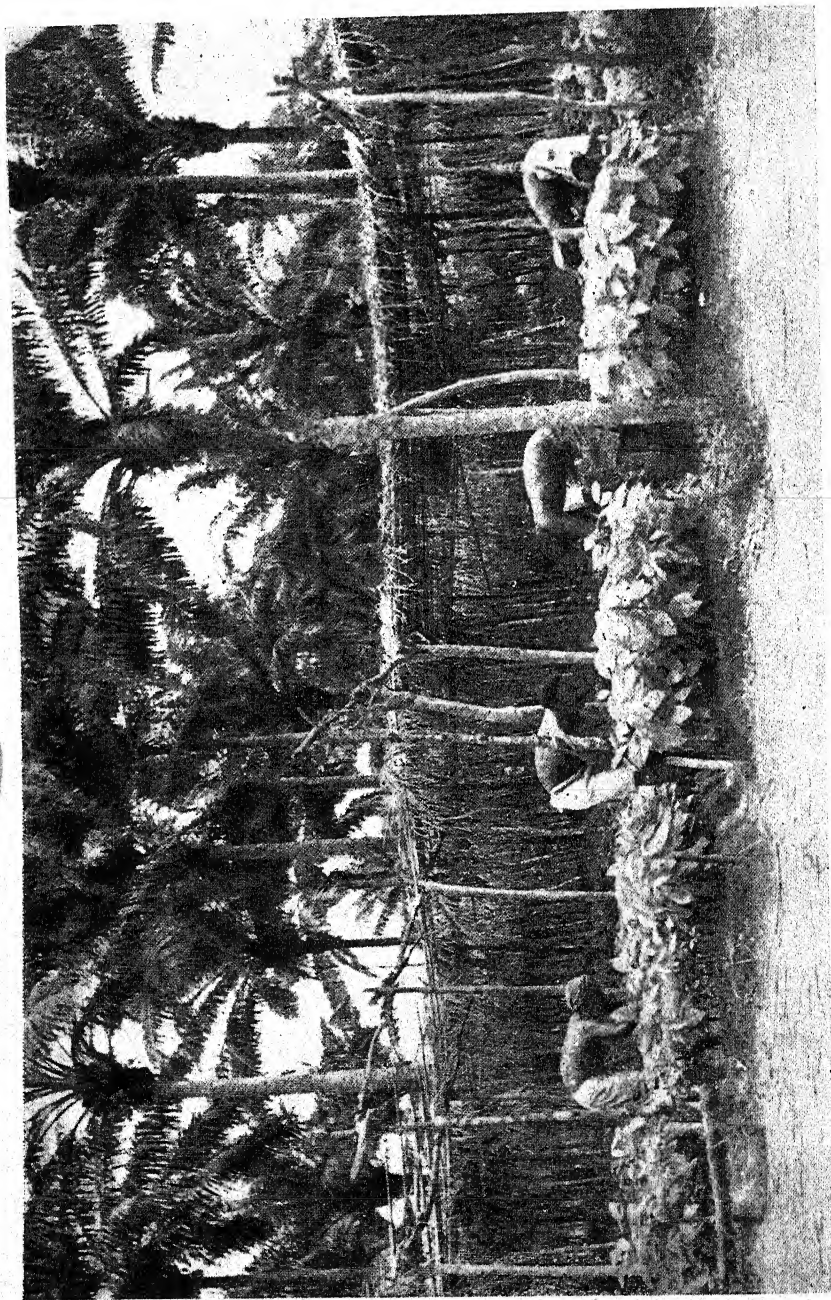
The coffee exported before 1932 was negligible, yet five years later over 4,000 tons were being exported annually. Coffee beans are the half-kernel from the fruit of various trees and shrubs which grow to 15 or 20 feet high, unless pruned, and have smooth evergreen leaves with white star-shaped flowers. The fruit is rather like a cherry, turning, as it ripens, from green through yellow to red and purple. Wild Shari and Congo coffee have already been mentioned. Plantations have now been established with three main types—Liberian, Congo, and Arabian coffee. Liberian coffee is more suited to lowlands and is grown in Gabon. Congo coffee is indigenous to Moyen Congo, and shares with Arabian coffee the quite considerable production from the Kouilou valley and Mayombe plateau. With Shari coffee, it also makes up the main part of production from Ubangi-Shari.

As was mentioned earlier, Ubangi-Shari is the greatest coffee producer, perhaps because in that territory there is least competition from cocoa. In the period 1925 to 1930 all males were ordered to plant as many trees as they could, and plantations were being developed by the Compagnie Forestière Sangha-Oubangui. The agricultural school at Bossembélé is training native supervisors in the growing of both coffee and rubber. In the Cameroons, plantations have been developed with Liberian and Congo coffee in the Dja and Boumba valleys, and with Congo and Arabian coffee at Ebolova, Tchang, and Foubam. Owing to the increasing production in the Bafang area, an experimental station has been recently opened there.

Although coffee cultivation is more difficult than that of cocoa, it was estimated that some 7 million plants were native owned in 1937 under the control of co-operative societies or the administration, and that 40 per cent. of the Cameroons export was native produced. In the same year the number of European-owned plantations was as follows: 46 in Ubangi-Shari, 34 in Gabon, 28 in Moyen Congo.



51. *Bringing Home the Harvest*



52. *Cocoa Plantation under Oil palms*

Many were on a large scale; for example, in Ubangi-Shari 13 were of 1,500 acres or more, each with its own factory. Total production for 1940 was estimated at about 3,400 tons.

Ground-nuts, for which there is a considerable French demand, have been tried on the Batéké plateau, and are doing well. This is a paying and easy crop. Meanwhile the export of ground-nuts from the Cameroons reached 12,000 tons in 1937. Although this is more a native than a plantation crop, its development is due to European intervention.

Bananas, like cocoa, have shown startling success on the European market. It is not surprising that their culture was introduced into the Cameroons. Export figures passed the 24,000 tons in 1937. In contrast with production of coffee and cocoa (*see* table below), most of the plantations are owned by European companies. It was only in 1938 that the first native banana co-operative society was being formed.

*Approximate Percentage of Native Production in Cameroons
Exports of 1938*

Cotton, ground-nuts, maize, and sesame	100
Cocoa	99
Palm oil and kernels	92
Rubber	43
Coffee	40
Bananas	19

Where plantations have been established for commercial production, the owner rarely concentrates on one crop. In addition many food crops such as beans, peas, manioc, yams, and plantains are grown for the many employees engaged in cultivating, harvesting, and preparing the main crops for market. Experimental plantings of many other crops have been made with the idea of developing native production to lessen imports, and also of varying the diet of the labour employed. Among these lesser crops may be listed such things as avocado pears, bread fruit, guavas, pawpaws, oranges, and pine-apples. Such production is intensified round the towns and along the railways, to feed both Europeans and the labourers who have been assembled, and along with the various tropical vegetables and fruits, European introductions will be found—tomatoes, lettuces, garden peas, radishes, and even sometimes apples and strawberries.

There are small plantations of vanilla and cloves in Gabon, and also of coco-nuts near Libreville, but the total production of all is very small.

So far achievements of an agricultural economy have been mentioned only where they affect food supplies. The most important crops of the future may well prove to be rubber and cotton.

As has been stated, wild rubber is there for the gathering. To-day that may be important, in the future it may not be. Meanwhile plantations have been established, and Hevea and Ceara trees were chosen. The latter has been grown successfully along with native Funtumia trees and White Rubber vines, especially in Ubangi-Shari, where at one time over 2 million trees had been planted. Transport costs, however, are heavy from this inland area, and the slump of the early thirties, together with the price control under the Stevenson scheme, hit this industry very severely; plantations were neglected, and the trees even allowed to burn in the bush fires. To-day training schools such as that at Bossembélé, an increasing number of native overseers, and the provident societies, are laying the foundations of a sounder and larger production.

Cotton, an article of native, as well as of European, demand, has long been grown on the black and well-watered soils of the savanna. The yield per acre is, however, poor (only 275 lb. per acre as compared with the 350 per acre in the Belgian Congo), and the administration has made a big effort to improve production. Through the provident societies and cotton companies tools and ginneries have been provided, and selected seed has been supplied—for instance, Allen's long-staple cotton has been found highly suitable for the north. Three research stations have been established in the Logone and Ouaka regions, and three more are planned. The Textile Service has been abolished recently; officials of the Agricultural Service have been put in charge of the Selection Service, and responsibility for production placed upon provincial governors.

Amongst new introductions mention may be made of sisal and soya beans. Experimental plantations of sisal have been made, and production is probably possible on a scale sufficient to provide fibre for the sacking needed in the country, with artificial manure as a valuable by-product. Certain varieties of soya bean seem to grow successfully in the Cameroons.

Another important new-comer in a country where malaria is rife is the cinchona, whose leaf is the source of quinine. Production was, as usual, started in an attempt to lower imports and break a monopoly—in this instance, held by the Dutch East Indies. Plantations of yellow bark cinchona and red bark cinchona, which had been established near Tchang in 1929, had by 1938 distributed over 5,000

plants of the former, and nearly 100,000 of the latter, while there were about 280,000 young plants in the nurseries. The quinine content has proved satisfactory, and an experimental laboratory is in course of construction at Tchang, to develop plants which have proved most productive in the particular climate of the country. Several pounds of quinine were produced in 1938 at the Chemical Laboratory in Douala and passed to the Health Department for medicinal tests.

Experimental plantations of imported tobaccos were started by the Germans at Biboundi and other places. Though the industry was not really established by 1918, it had been proved that the volcanic soils could produce an excellent cigar leaf, and cultivation continues.

AGRICULTURAL SERVICES

The following services and controls have been established:

Native Provident Societies.

Native Co-operative Societies.

European Agricultural Credit Banks.

An Agricultural Service (Service d'Agriculture).

A Veterinary Service (Service Zootechnique et des Epizooties).

A Forestry Service (Service forestier).

Production Controls (Contrôles de la production).

A Native Food Production Office (Office de l'alimentation indigène).

Provident societies, whose administrative details are dealt with in Chapter IX, have been at work since 1938, with the object of aiding agriculture, stock raising, and fishing, and of helping to improve the harvesting, preparation, storage, and marketing of their products. Loans in cash are made to members, tools and seed provided, and prices controlled. The societies contribute to the salaries of agricultural administrative officers, and of personnel on the experimental research stations. Any surplus of funds has to be applied to works beneficial to agriculture in the territory of the society.

Three native co-operative societies exist in the Cameroons, all concerned with the production of coffee:

The Co-operative of Bamoun planters of *C. arabica* at Foubam;

The Co-operative of native planters of *C. arabica* in the subdivision of Tchang;

The Co-operative of native planters of *C. robusta* in the subdivision of Bafang.

The turnover for the three totalled over 6 million francs in 1938, and at the end of the year the cash in hand amounted to 241,841 francs. In 1938 a native co-operative was being formed to grow bananas for export.

Europeans need belong to no society, but help is available for them through the three banks mentioned in the 'Finance' section of Chapter XIII.

Agricultural, veterinary, and forestry services were started in 1936, and their aims may be summarized as follows:

Agricultural service:

- to develop the cultivation of food and export crops and introduce new types;
- to improve methods of cultivation and preparation of crops;
- to decide the most suitable area for each crop, create nurseries, research and experimental stations;
- to facilitate the establishment of European and native settlements, and decide the boundaries between them.

Veterinary service:

- to protect stock by fighting plagues;
- to increase existing herds, improve local types, and introduce stock to areas where there are none;
- to educate native pastoralists;
- to improve stock routes to the population centres;
- to establish laboratories, local schools, fairs, and cattle shows.

Forestry service:

- to preserve the forest and enrich it by planting;
- to plan with the agricultural service forest zones and agricultural zones in order to serve the interests of Europeans, natives, and the timber exploiters;
- to create reserves and experimental stations.

The personnel of these three services in the Cameroons numbered 220 in 1938: agricultural, 97; veterinary, 90; forestry, 33.

Production controls are bodies created to see that the order to store food against bad years is carried out. One such control acts in each region, and its officers are commissioned to supervise the economic programme of each area. They also have powers to inspect the provident societies, study the development of irrigation, and to gather, and report upon, all facts relevant to agricultural improve-

ment. Native food production offices also advise the government on the improvement of local food supplies.

Alternative Names to Products

MANY of the products mentioned in this Chapter have alternative names. The list below is arranged alphabetically according to the names used in the chapter. Common English alternatives are given second, and followed by the botanical name in italics. Where a native name is wide-spread or a French name is common it is given, but often each tribal group has its own name for a crop. The commoner products such as wheat and cotton and the minor crops have been deliberately omitted.

African fan palm. Borassus, Palmyra, or Desert palm. *Borassus aethiopum*.
Rônier. Manak.

African locust bean. *Parkia filicoidea* and *P. biglobosa*. Arbre à farine.
Nété.

Bananas. *Musa sapientum*. Figue-banane.

Baobab. Monkey bread tree. *Adansonia digitata*.

Ber tree. Jujube tree. *Ziziphus jujuba*.

Bulrush millet (*see* Millets).

Bur grass. *Cenchrus catharticus* or *C. biflorus*. Cram-cram (Kram-kram),
also applied to other grasses.

Butter bean. Lima, Rangoon, or Madagascar bean. *Phaseolus lunatus*.
Mbatì, Mbrui.

Castor oil. *Ricinus communis*. Ricin.

Christmas bush. *Alchornea cordifolia*.

Cinchona. Yellow bark. *C. Ledgeriana*.

Red bark. *C. succirubra*.

Coffee. Arabian. *Coffea arabica*.

Congo. *Coffea robusta*.

Liberian. *Coffea liberica*.

Shari. *Coffea excelsa*.

Colocynth. Bitter gourd. *Citrullus Colocynthis*. Handal.

Cowpea. *Vigna unguiculata*, *V. catjang*, or *V. sinensis*. Haricot indigène.

Crabwood. Monkey cola. *Carapa procera*.

Dates. *Phoenix dactylifera*. Tamr (the fruit), Dattier.

Dazo. *Coleus dazo*. Bigondi.

Djave nut tree. False shea tree. *Mimusops djave*, Moabi, Orere.

Doum palm. Dom, Dum or Ginger bread palm. *Hyphaene thebaica*.
Palmier doum.

Earth pea (*see* Ground-nuts).

Egg plant. Garden egg, Brinjal. *Solanum Melongena* or *S. incarum*.
Aubergine. Diagna.

Finger millet (*see* Millets).

Gabon nut tree. African walnut. *Coula edulis*. Wula, Kumini (the fruit).
Grain Sorghum (*see* Millets).

Ground-nuts. (a) Earth pea, Madagascar or Bambara ground-nuts.
Voandzeia subterranea. Pois souterrain, Voandzou, Tiga.

(b) Monkey nuts, Peanuts. *Arachis hypogaea*. Arachide, Tiga.

Had. *Cornulaca monacantha*.

Hungry rice (*see* Millets).

Incense tree. Bush candle tree, African elemi. *Canarium Schweinfurthii*.
Elémier du Gabon.

Madagascar potato. Hausa or Fra-fra potato. *Coleus dysentericus* and
C. rotundifolius. Ousonifing.

Maize. Indian corn. *Zea mays*. Maïs.

Manioc. Cassava. Tapioca (a) Bitter, *Manihot utilisima*.

(b) Sweet, *Manihot palmata*.

Meni oil tree. False shea. *Lophira procera* or *L. alata*. Bongossi, Méné.

Millets. Bulrush millet, Pearl or Spiked millet. *Grain pennisetum*.

Petit mil, Jadouri.

Finger millet, Eleusine. *Eleusine coracana*. Petit mil.

Large millet, Guinea corn. *Grain sorghum*. Sorghum. Gros mil.

Hungry rice. *Digitaria exilis*. Petit mil.

Mustard tree (*see* Saltbush).

Ochro. Okra, Lady's fingers. *Hibiscus esculentus*. Gombo, Ndando.

Oil bean tree. Atta bean. *Pentaclethra macrophylla*. Arbres à semelles,
Kombolo.

Oil palm. *Elaeis guineensis*. Palmier à huile.

Pepper, Cultivated. Guinea pepper. Pimento. *Capsicum* sp. esp. *C. annum*
and *C. frutescens*. Ndonga. Masoro.

Wild. Ashanti, West African or black pepper. *Piper guineense*.
Ndonga, Masoro.

Plantains. *Musa sapientum*, var. *paradisaica*. Banane cochon.

Rubber. Ceara. *Manihot Glaziovii*.

Funtumia, West African. *F. elastica*. Iréh. Manyongo.

Hevea. *H. brasiliensis*.

White rubber vine. *Landolphia owariensis* and *Clitandra* sp.

Saltbush. Toothbrush or Mustard tree. *Salvadora persica*. Siwak,
Shau, Arak.

Sesame. Beniseed. *Sesamum indicum*. Bene.

Shea butter tree. *Butyrospermum Parkii*. Karité.

Silk cotton tree. (a) White flowered. *Ceiba pentandra*, *Eriodendron* and
Bombax sp.

(b) Red flowered. *Bombax buonopozense*. Bombax, Ka-
pokier, Johi.

Swallow wort. Sodom apple. *Calotropis procera*. Oschar. Krunka.

Sweet potato. *Ipomoea Batatas*.

Taro. Coco yam. *Colocasia esculentum* and *Xanthosoma sagittifolium*.

Macabo.

Water liane. *Tetracera potatoria*. Liane à eau.

Wild mango. African mango. *Irvingia gabonensis*. Oba or Dika.

Yams. *Dioscorea* sp. Igname.

CHAPTER XIII

TRADE, MINING, INDUSTRY, AND FINANCE

Summary

To describe the present-day activities of Great Britain in the important matters of trade, industry, mining, and finance would require a library rather than a chapter. Yet, even after a period of Roman rule, Tacitus was able to sum up similar British activities of that day in a single sentence. French Equatorial Africa is still in the stage of development of Roman Britain. The population, relatively very small (4 to the sq. mile), hampered by lack of communication, and often burdened by disease (*see* Chapter V), is in no position to provide the labour required for quick development. Stock raising in the north, agriculture in the orchard bush and forest belt, and fishing on the rivers provide a livelihood. The vast majority have always lived from hand to mouth, feeding, clothing, and housing themselves, and meeting their few extra wants by barter at periodical markets. When European penetration began the country was full of possibilities, and rich in tropical products. It lacked the man power, and what existed required no fresh employment. To quote from I. E. Greaves's *Modern Production among Backward Peoples*:

'When in the transition stages of a self-sufficient economy the standard of living does not have to adjust itself to ruling market values, because the natives have an alternative means of living available, there may easily be a gap between what their labour is worth to an Employer and the price they set upon their time and effort.'

Fig. 83, contrasting trade, population, area, and invested capital in Nigeria, the Congo, French Equatorial Africa, and the Cameroons, illustrates the above summary. It shows how very small the population is in relation to its area, especially in French Equatorial Africa, and how small is the volume of trade compared with the totals of neighbouring territories. There is, however, a curious point to observe in the lengths of the spears (of invested capital) compared to the height of the men (populations). Actually there is more invested capital *per head* in French Equatorial Africa than in Nigeria, but this fact is due to the great expense of the Brazzaville-Pointe Noire railway and port, which takes some 80 per cent. of the whole invested capital.

COMPARATIVE SIZES OF TRADE, POPULATION, AREA, AND INVESTED CAPITAL

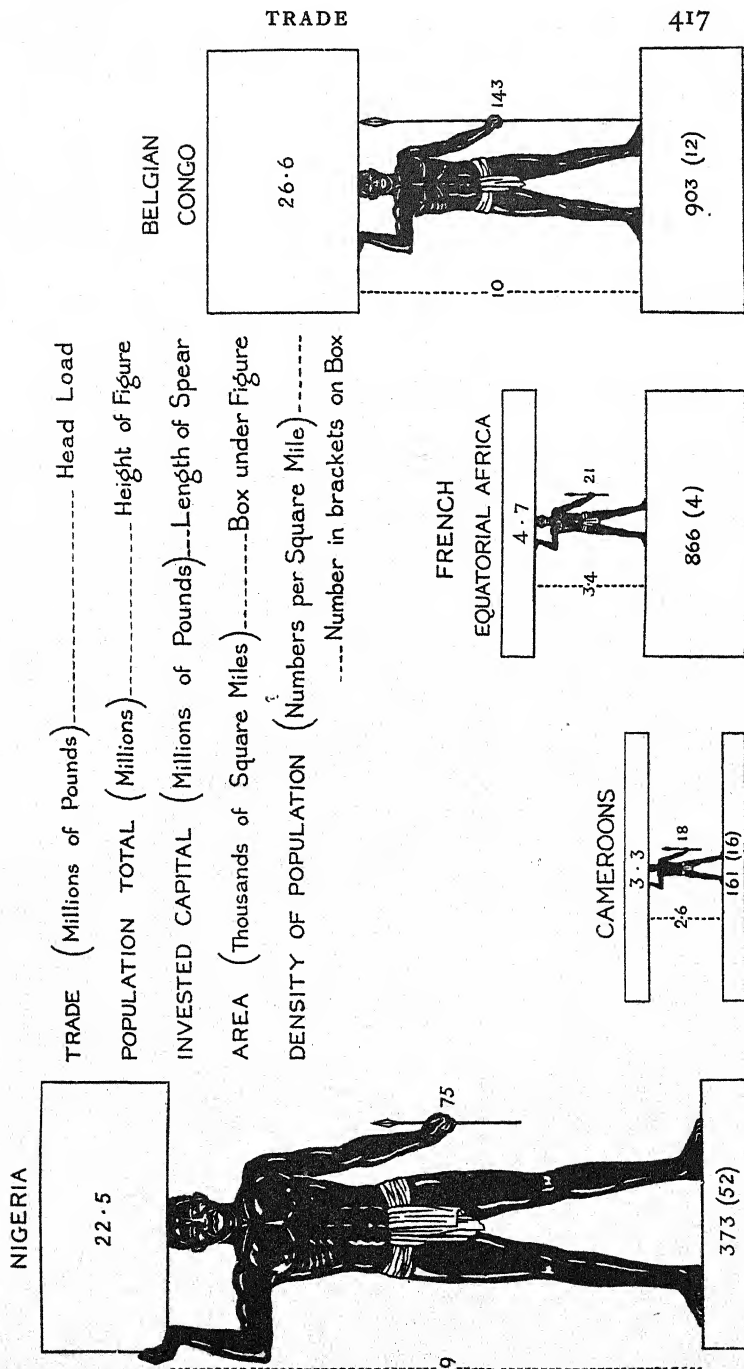


FIG. 83. Population, Area, Trade, and Investment. A comparison

Two facts of history have added difficulty. In the first place some French colony had to find territory with which to buy Germany's temporary good will to a French Protectorate in Morocco. It was French Equatorial Africa which was sacrificed, and left cut into three separate pieces, for that purpose (*see pp. 245, 246*). The second handicap has been the rapid deterioration of the franc. Fig. 84 shows the course of that devaluation. Successive values of the franc are shown in terms both of gold and of sterling. Naturally as the franc falls the price of imports, in francs, rises and so therefore must wages and local commodities, but, as most of the trade of French Equatorial Africa and the Cameroons is with France, inflation must have tended to lag behind devaluation. Exactly how long that lag was cannot be stated. Comparisons with gold give a measure of what would have happened had confidence in the national coinage declined concurrently with its value, and had gold remained in fact the real guide to the price of commodities. Neither actually occurred, and it is for this reason that a comparison with sterling is also given, because sterling did actually express what was happening to commodity prices better than gold.

Since the declaration of a Free France, and the adherence of French Equatorial Africa to its cause, trade has been reoriented. Great Britain takes the tropical products. Moreover, development and industry have been suddenly and greatly stimulated. Communications are being rapidly extended, and mining improves its output. These are developments which must wait for record. The succeeding sections carry the facts only up to the declaration of war.

TRADE

Origins

FOR thousands of years trade has been one of barter. Grain and cattle, ivory, rubber, and easily handled timber, fish and salt, spearheads and cotton, have spread from local centres. Long before the first European sailed past the long white beaches of French Equatorial Africa ivory and rubber were finding their way north and east across the Sahara. From the first appearance of the Arabs (eighth century) the slave-trade began in earnest and with it that in ivory increased. Arab traders came farther and farther south. Cattle, salt, and grain passed across Lake Chad. The markets of a more prosperous and densely populated Nigeria directed trade down the Benue. Pilgrim traffic, and trade with it, began to go eastwards across the Chad depression towards El Fasher and Khartoum. Gradually a dozen

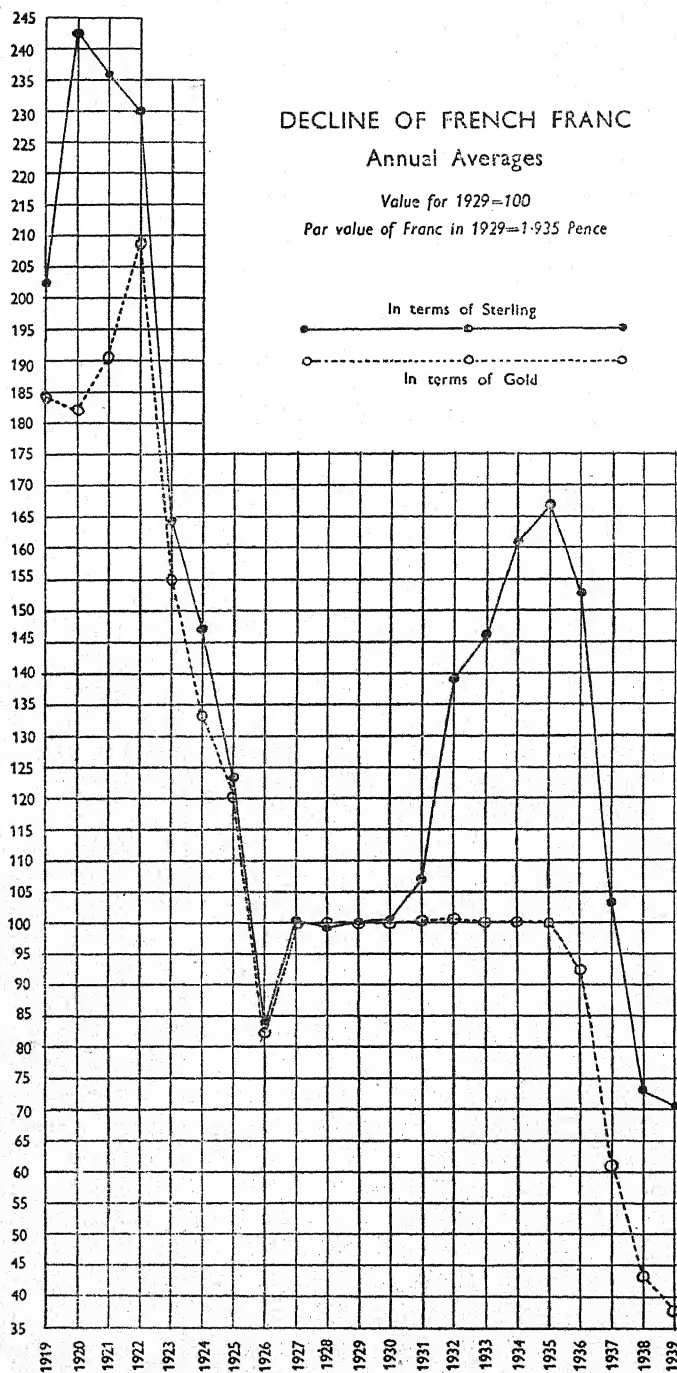


FIG. 84. *The fall of the Franc*

or more rudimentary currencies—spear-heads and the like—were evolved. Markets became established, each locality having its special day of the four-day week native to these parts. Copper and iron in small quantities found their way as far as Europe. But these trade movements were relatively few and are reminiscent of the spread of Irish gold or Baltic amber before the decline and fall of Rome. In spite of the peddling of Arabs, Fulani, and Hausas, the vast bulk of the population lived upon their own resources with little over for barter. Still the idea was there, and upon it grew up vested interests in territory and transport. According to native ideas the whole tribal area belonged to the tribe and each tribe strong enough to claim its rights took toll of merchandise passing through. Difficulties of passage, such as falls or rapids on the only available waterway, made the infliction of an arbitrary 'octroi' easy. Certain tribes specialized in river transport or in head loading. Chiefs or sultans took their percentages, whilst, all the time, a kaleidoscope of migrations, invasions, and small wars interrupted and destroyed. Present-day trade is evolving on the foundation of these ancient ways, and it is important to remember that fact because it created innumerable minor byways of trade which still exist and which no customs houses, no taxes or penalties, and no statistics, have covered, or are likely to cover, until an administrative staff of sufficient size is at work. Probably another 10 per cent. could be added to present-day statistics of imports or exports.

European trade began late in the fifteenth century. For three centuries slaves were the most important item, but in that 'silent trade', referred to on p. 228, ivory and rubber, gold dust and tropical products were eagerly sought by the adventurous few—English, Dutch, Scandinavian, or French—and paid for by trinkets or cheap European manufactures. The Cameroons were opened earliest and most thoroughly, because of the natural harbours of Douala and Port Victoria, and because the Forest Belt was thinnest and most easily traversed from them. Farther south, in what are now French Equatorial Africa and Spanish Guinea, approach to the beaches was across surf and bar to a coast cut off from the interior by a long barrier of densely wooded heights. It was not till late in the nineteenth century that the difficult waterways of the Ogowé, Nyanga, and Niari led French explorers through that back fence into a hinterland whose natural outlet was down the Congo. Nowadays the Brazzaville-Pointe Noire railway provides a safe and easy exit, yet the broad facts remain. Until many more good communications are made the

coast of French Equatorial Africa cannot compete with Douala, the towns and peoples of the coast will continue to import from abroad commodities easily procurable, if access permitted, from the country behind, and the Cameroons will continue to lead in development. We are considering a country in the making, where invested capital is just sufficient to deal with the easiest products, where labour is both insufficient and shy, where malaria and sleeping-sickness cramp movement of man and beast, and where a staff all too small for so vast an area can barely administer and supervise.

Expansion

Table A, immediately below, gives a general picture of the growth of trade in this century. It deals with periods of five years each, giving the mean annual figure for each period.

TABLE A

Mean Yearly Values, during the periods given below, in thousands of francs

<i>French Equatorial Africa</i>			<i>Periods</i>	<i>Cameroons</i>		
<i>Imports</i>	<i>Exports</i>	<i>Totals</i>		<i>Imports</i>	<i>Exports</i>	<i>Totals</i>
7,900	13,500	21,400	1901-5 ¹	11,605	9,407	21,012
12,500	19,000	31,500	1906-10	19,413	15,777	35,190
15,600	24,000	39,600	1911-15	34,379	25,780	60,159
21,000	56,000	77,000	1916-20	19,472	20,114	39,586
47,000	47,000	94,000	1921-5	64,294	53,816	118,110
237,411	145,432	385,991	1926-30	193,352	153,053	346,405
200,461	145,432	345,893	1931-5	79,912	82,667	162,579

¹ For the Cameroons this period was from 1903 (not 1901) to 1905.

Five-year periods have been chosen in order to smooth out the effects of devaluation. Since the greatest volume of trade, both export and import, is with metropolitan France the effect of these devaluations must come well after their actual occurrence. An absolutely clear picture of what happened to trade during the devaluations cannot be given. Fig. 84 must be consulted and its significance estimated. A table of tonnages would be a still worse guide, since commodities vary so greatly in unit value. It must be understood, however, that the actual expansion shown by the figures themselves is greatly overdrawn, since the gold value of the franc in 1935 was little more than a half of that in 1901. One last general remark must be made. The French in Equatorial Africa and in the Cameroons have three different fiscal areas to deal with. The conventional

'Congo Basin' is open to all the signatories of the Berlin Convention on an equal trade footing. The mandated area of the Cameroons is open to all members of the League of Nations on an equal trade footing, and the remainder—the greater parts of Gabon and Ubangi Shari, and all of Chad—trade under a tariff fixed by France. Trade returns and summaries such as Tables A and C are burdened by these different tariffs, and this is one further difficulty in arriving at a clear picture.

The great increase in imports during the last two periods is due to machinery, iron and steel, rolling stock, and building material, and is a healthy sign of development. The fact that the last period shows a decrease is due to the universal depression of the early thirties, whilst the boom year of 1920 is evened out in the five-year periods concerned. Perhaps Fig. 85 shows more clearly the ups and downs of trade, but it should be studied with an eye upon the movements of the franc.

Both Table A and Fig. 85 show the decline of the early thirties. There was a disastrous fall in the value of the tropical commodities which form the bulk of the exports. The following table, taken from an article by M. Gaston Eyskens in the *Bulletin de l'Institut des Sciences Économiques de l'Université de Louvain*, shows the fall in price and the indices of the minimum prices ruling during the depression, calculated on the basis: Prices of 1927-9 equal 100. Although the table applies to the Belgian Congo, it is equally applicable to French Equatorial Africa and the Cameroons.

	Dates	Minimum indices	
Palm oil	August 1934	18.5	Percentages of the prices ruling in 1927-9.
Palm nuts	July 1934	19.0	
Sesame	July 1934	26.4	
Cocoa	November 1934	26.7	
Cotton	June 1932	33.0	
Coffee.	March 1935	37.9	
Copal	March 1935	38.7	
Rubber	June 1932	10.4	
Ivory	October 1933	27.1	
Hides	May 1932	19.1	
Copper	October 1934	22.5	
Tin	April 1932	33.8	
Gold	September 1934	99.9	

Enough has been said to show that trade is small not only in comparison with neighbouring colonies, but even more so in thinking of world trade in general. In this latter particular no very great improvement can take place until or unless population increases very greatly. The whole of Africa south of the Sahara contributed no more than 3.2 per cent. of the imports of Great Britain in 1934 or

Millions
of Francs

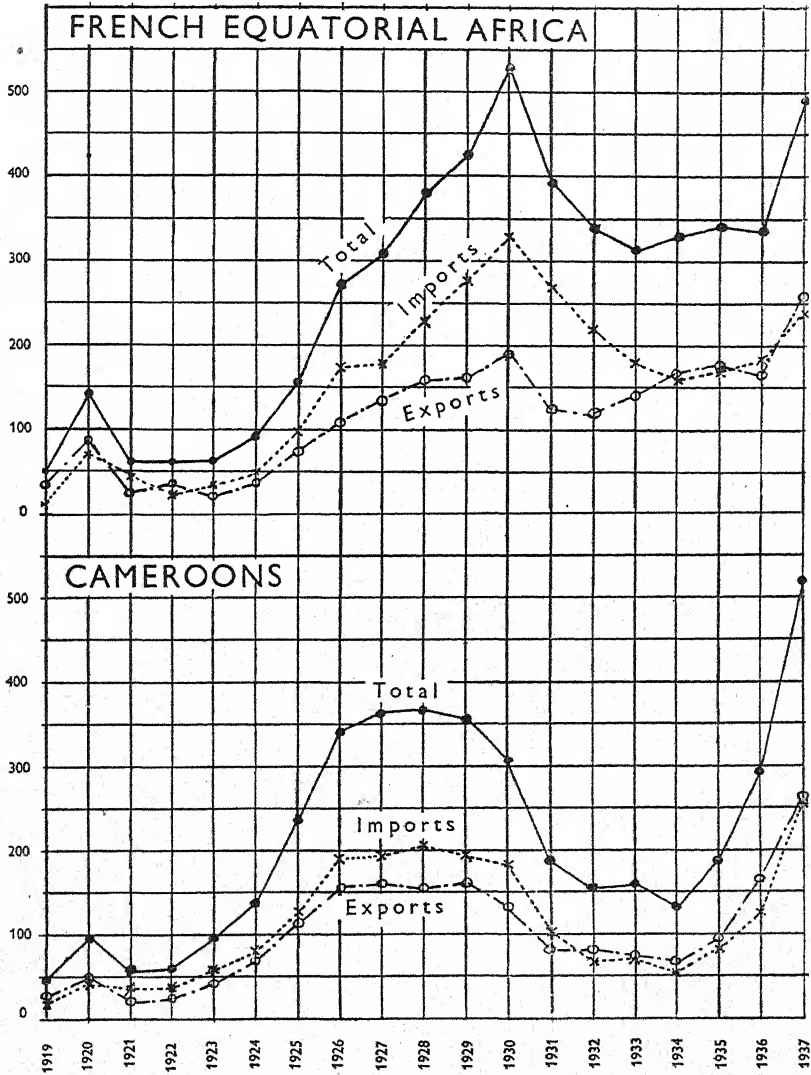


FIG. 85. Exports and imports

4·1 per cent. of Germany's imports in that same year. Africa is not likely to become industrialized, but in competition with her immediate neighbours Equatorial Africa, rich in raw materials and tropical products, should improve with better communications and more capital, and the Cameroons are even better placed. The figures quoted below show how the countries we are considering compare with their neighbours:

Trade in Africa South of the Sahara and Abyssinia = 100

	Percentages		
	1907	1928	1935
Nigeria	6·17	9·37	6·03
French West Africa	5·95	5·95	5·87
Anglo-Egyptian Sudan	1·76	3·48	3·12
Belgian Congo	2·85	4·69	4·15
French Equatorial Africa	1·15	0·87	1·48
Cameroons	1·42	0·85	0·70

TABLE B

Principal Exports: The Mean Yearly Value for the Period 1934-7

Note. A table of comparative value is arrived at by dividing the price (in thousands of francs) by the number of tons exported.

<i>French Equatorial Africa</i>	<i>Commodity</i>	<i>Comparative value by weight</i>	<i>Cameroons</i>
..	Bananas (tons)	0·6	9,990
624	Cocoa "	3·0	24,024
1,090	Coffee "	4·6	1,660
151	Copal "	1·5	..
6,669	Cotton "	4·4	47
154	Ground-nuts "	1·0	9,236
11,213	Palm nuts "	0·5	38,812
4,870	Palm oil "	1·2	8,308
749	Rubber "	1·9	903
480	Sesame "	0·8	1,116
338	Wax "	5·5	..
11	Ivory "	33·0	..
353,008	Timber ¹ "	0·3	40,998
1,137	Copper "	0·6	..
..	Rutile "	1·8	66
..	Tin "	9·3	284
2,125	Gold (lb. Troy)	15,000	838
1,981	Diamonds (carats)	3,000,000	..
73,078	Cattle (head)	1·1	3,948

¹ In each case okoumé represents 94 per cent. of this figure.

Exports

Early traders, both European and Arab, came mainly for ivory, rubber, and palm oil. Of these ivory perhaps took first place. In those early days it was procurable in return for commodities of small value, and since the demand was moderate it could be met without depleting stocks. To-day the native is better aware of the value of ivory, whilst stocks were greatly depleted by the heavy demands consequent on early exploitation. In the period 1901-5, the peak of the ivory trade, 174 tons were exported from French Equatorial Africa. In the period 1925-9 only 86. It is not the elephant which has disappeared, but the stocks of ivory held by sultan or tribe. There seems little doubt, however, that a steady, but clandestine, trade in ivory still goes on, north and north-east. Ivory now takes a low place amongst the recorded exports.

Rubber is as procurable now as before; but the great plantations of the Far East have so affected prices that it no longer pays to collect the wild product. The forest is cosmopolitan rather than selective, and wild rubber trees may grow in profusion and yet be separated one from another by dense growth of other sorts. Experiments in rubber plantation promise well, but success in competition must depend on ease and economy of a transport which is absent to-day. The peak year of rubber (1927) saw an export from French Equatorial Africa of 1,763 tons, but a sharp drop followed the fall in price. In 1934 export was only just over 500 tons, but in 1937 it had risen again to 1,106. It ranks low now amongst exports.

To these three main early products should be added livestock. The cattle industry of the Chad depression has flourished for centuries. It maintains and improves its position, but its clientele is native rather than European and its export is to neighbouring African territories. It is reckoned that there were in 1929 about one million head of cattle in Chad and 600,000 or more in northern Cameroons. Nevertheless, cattle rank only eighth and ninth amongst present-day exports.

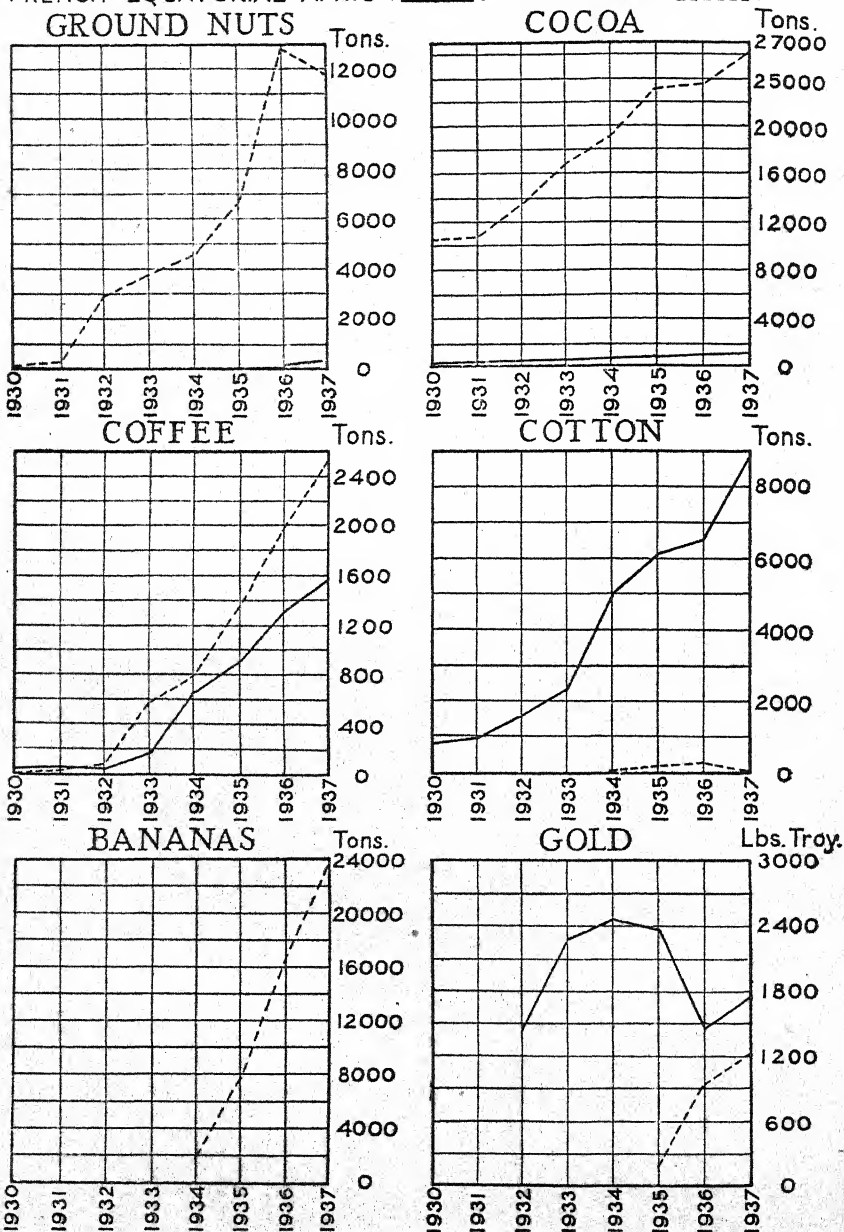
The sudden change of fashion which dismissed ostrich plumes and aigrettes from the hats of the well dressed came as a blow to the Chad area, where (in 1930) there were a thousand tame ostriches, and where a flourishing trade had grown up in both products. That trade is dead to-day.

The main exports of to-day are timber, coffee, gold, palm nuts, cocoa, cotton, and palm oil, roughly in that order. These are followed

NEW & GROWING EXPORTS

For the period 1930-1937.

FRENCH EQUATORIAL AFRICA ———. CAMEROONS - - - - -

FIG. 86. *New and growing exports*

by cattle, rubber, bananas, ground-nuts, maize, sesame, copper, and tin. Of these coffee, cocoa, ground-nuts, and maize are newish products, all of which could be vastly increased. Fig. 86 shows the growth in the export of the newer products.

During the early years of this war the production of coffee—mainly in Ubangi-Shari—and of cotton in Chad and Ubangi-Shari, has been pushed on. Coffee production has risen from 1,509 tons in 1937 to an estimated 3,425 tons in 1940, whilst cotton in the same period has risen from 8,500 tons (in the fibre) to 14,000 tons. Provident societies and local budgets have combined with the cotton societies in the provision of machinery. In the Chad basin there are huge areas, very similar to the Gezireh of the Anglo-Egyptian Sudan, suitable for cotton cultivation. In 1937 there were 2½ million acres already under this crop.

The timber trade concentrates mainly on the okoumé tree, the advantages of which are its value for veneers, and the fact that it can be floated to the embarkation port. The harder, heavier, and intrinsically more valuable ebony, also available in quantity, is, at present, too difficult to transport.

It is in vegetable oils perhaps that the country is richest. There are many varieties, such as cotton seed oil, as yet untouched, which could be exported, and the trade in ground-nuts and palm nuts is capable of vast expansion. It may be said that the export of ground-nuts from French Equatorial Africa is only in its infancy.

Mineral exports are beginning to make themselves felt. Here, too, only the infancy of a potentially valuable market is in evidence.

Imports

Imports show the complementary picture, for the most valuable are those required for development. For this reason, in French Equatorial Africa, imports at present outweigh exports. Even in the Cameroons these iron, steel, rolling stock, machinery, and cement (building) stores take pride of place. Petrol and coal figure largely because neither is as yet available locally. Rice, fish, flour, and salt represent the moderate food imports. These items are all produced locally, and imports might be cut down if internal communications were improved.

Table C gives the mean yearly imports for the period 1935-6. Since this table gives imports in the order of the totals expended on them, it will be clear how much was bought, in this period, for industrial development. This is particularly noticeable for French Equatorial,

and is mainly for the harbour of Pointe Noire and the railway from thence to Brazzaville. The 'boats' mentioned are whale-boats for river transport.

TABLE C

Principal Imports: The Mean Yearly Values for the Period 1935-6

Notes

1. A table of comparative values gives the value of one unit (as quoted) of each commodity in terms of the value of a ton of coal. Coal is, however, two and a half times as expensive in the Cameroons as in French Equatorial Africa, and differences of comparative value between the two adjoining areas are accounted for by that fact, and by difference of tariff.
2. Commodities are given in the order of the total expenditure upon them, the first being that on which most money has been expended.

French Equatorial Africa				Cameroons			
	Unit	Quantity	Unit value		Unit	Quantity	Unit value
Machines (complete)	Ton	1,729	242.8	Cotton, silk, and jute	Ton	2,753	89.6
Cotton (pieces)	"	1,140	367.1	Cutlery and metal	"		
Petrol and products	"	10,148	22.5	wares	"	2,940	32.3
Rolling stock	"	1,397	112.3	Automobiles, tyres,	"		
Machinery (parts)	"	645	213.5	and parts	"	835	75.5
Wines	"	2,471	52.2	Petrol and products	"	5,082	7.2
Automobiles and	"			Tobacco	"	316	109.5
tractors	"	296	379.4	Machines (complete)	"	223	146.0
Clothes (ready made)	"	207	602.2	Dried fish	"	1,062	29.9
Aeroplanes and parts	"	35	3054.0	Medicinal stores	"	41	549.6
Coal	"	105,196	1.0	Iron and steel bars	"	1,615	11.2
Dried fish	"	2,001	51.7	Salt	"	6,045	2.5
Cement	"	9,812	10.0	Rubber footwear	"	205	67.4
Iron and steel bars,	"	3,260	25.2	Rice	"	1,981	6.6
rails, and plates	"			Wines	"	698	18.6
Rice	"	3,605	22.2	Cement	"	8,180	1.5
Boats	"	1,299	60.1	Machinery (parts)	"	79	81.2
	Register			Beer	"	301	19.6
Tobacco	Ton	175	429.8	Coal	"	4,388	1.0
Livestock	Head	7,805	8.9				
Beer	Ton	599	106.5				
Paper	"	199	222.0				
Sugar	"	660	542.0				
Salt	"	3,223	10.3				

Direction (see Fig. 87)

That trade follows the flag is largely true everywhere, for language, currency, and commercial friendships are strong ties. Yet it is particularly true of French possessions because they are all subject to centralized government and a policy of empire self-sufficiency to which every part contributes its own complementary output. That policy, backed by subsidies and preferences, makes foreign competition a difficult matter. Trade in the Cameroons supplies a characteristic and striking example. Before 1860 British trade was pre-eminent in the Cameroons. From that date Germany made great and successful

VALUES & PERCENTAGES OF IMPORTS FROM, & EXPORTS TO, VARIOUS COUNTRIES 1937

FRENCH EQUATORIAL AFRICA

CAMEROONS

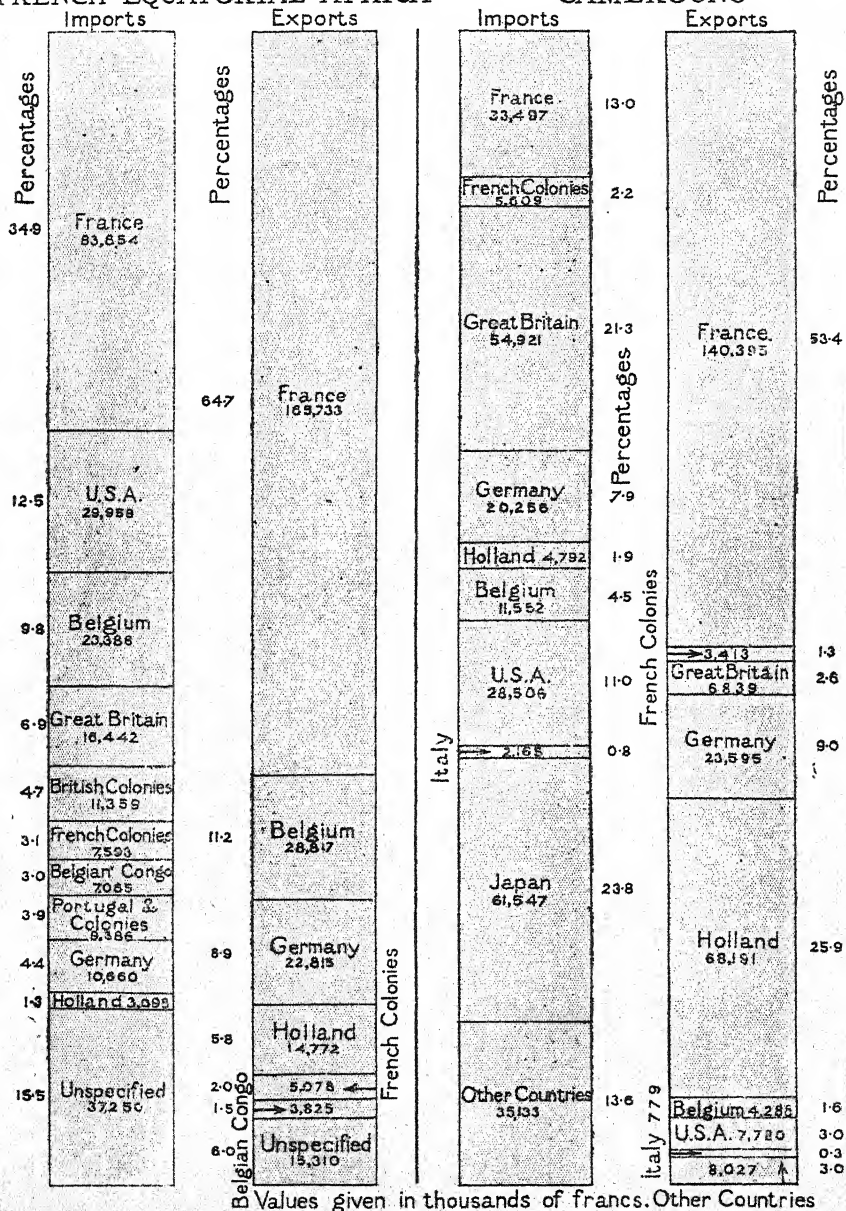


FIG. 87. Percentages and values: exports and imports

attempts to establish factories and business relations, backing her efforts by organized fortnightly sailings. This was, indeed, the part of 'the coast' in which she could best hope to establish herself in those early years and thus secure the tropical African products she desired. By 1884, when the Anglo-German agreement established German authority in the Cameroons, its trade was equally divided between the two countries. By 1890 there were three Germans for every one Englishman in the country: in 1913 there were 20. By 1903 British exports to the Cameroons had fallen to 28 per cent. as against a 71 per cent. for Germany, whilst British imports had sunk to one-fifth of the German. Before the 1914-18 war England's share of the total trade was but 15 per cent., whilst Germany monopolized the rest. By 1938, however, after twenty years of French rule, 47 per cent. of the total trade was in French hands and Great Britain and Germany were about equal at 8 per cent.

Where the native market, however small it may be, is in question, price will outweigh sentiment. Cheap Japanese textiles are a case in point. France can put no differential tariff upon them either in the Cameroons or in the Congo basin, and they have monopolized this trade. There is now, however, a beginning of a textile industry in the Belgian Congo. Cotton from Chad is beginning to find its way there.

Fig. 87 gives the percentages of trade with foreign countries, but the entrepôt trade adds difficulty in finding where exports eventually get to.

Sea Carrying

Fig. 88 shows the percentages of trade carried under different flags. It will be seen that trade not only follows the flag but is largely carried under it.

There are two main French services both run by the Chargeurs Réunis. The first is a fortnightly service from Bordeaux to Matadi in the Belgian Congo, calling at Douala and the ports and anchorages of French Equatorial Africa on the way. The second is a monthly service from Dunkirk which goes direct to Pointe Noire. Elder Dempster's ships from Liverpool call at Douala and then at the French Equatorial ports. This is a monthly service, as is that of the German Woermann Line from Hamburg. The Holland West Africa Lijn, the American Bull Line, the Navigazione Liberia Triestina, and the Kroh Line (Danish) call at Douala. The Bull Line also runs occasionally to Lobito bay, calling at the ports of French Equatorial Africa on the way. For coastwise traffic there is a small steamer which connects the coastal ports.

NATIONALITY OF SHIPS ENTERING PORTS

Mean of 1936-1937.

FRENCH EQUATORIAL AFRICA

CAMEROONS.

Percentage

Percentage

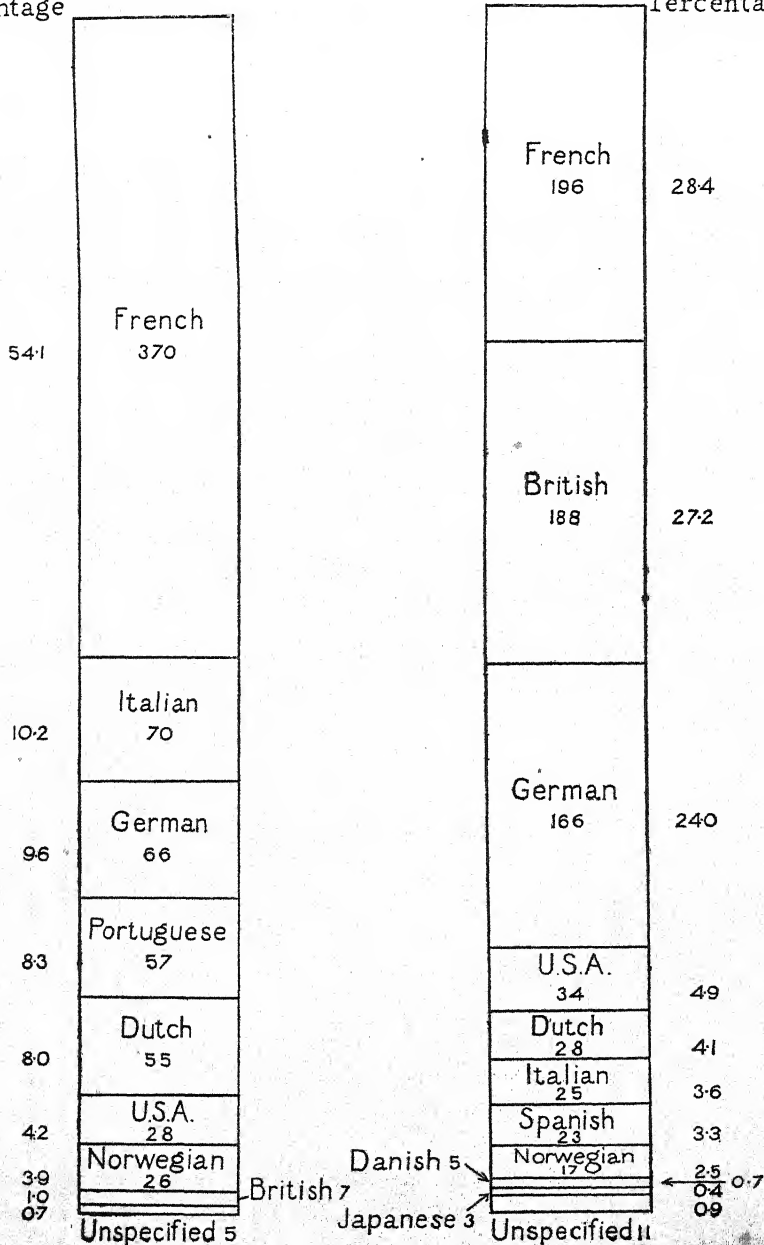


FIG. 88. Percentages and values: seaborne traffic

Internal

A country with a range of latitude as large as that of Russia, or as, say, from Colombo to the Hindu Kush, an area between five and six times that of France, and a variety that ranges from desert to dense tropical forest, must naturally interchange products within itself. The Chad basin is rich in cattle, and the forest belt has none because of the tsetse-fly. Hence there is a steady flow of cattle and hides from the north to the south. It is difficult to take livestock into the forest belt 'on the hoof' because of the fly, but routes have been found which cut down losses to 2 or 3 per cent. Baguirmi and Ouadai produce pottery. Native cloth is woven in the Chad area, in Ouadai and Mbomou. Natron and salt, collected and exported from the north, find their way south as far as Brazzaville. Dates are popular in the south and come from Tibesti and the oases of the desert. Cotton from the Chad depression finds its way as far south as the mills of Léopoldville.

The Hausa pedlar, the canoemen, or the head porters bringing these wares southwards will return with red wood bark for tanning, with kola nuts, ivory, palm oil, pine-apples, yams, and manioc.

Fishing tribes in the Chad basin and on the Bagui, Congo, and Sanga, all of them also middlemen and traders, set up markets between their own areas and the forest and there exchange fish, palm oil, wine, and red wood, for goats, fowls, sweet potatoes, yams, cassava, and other agricultural products. These river merchants do a thriving middleman's trade in rubber and ivory from the forest, indigo from the Bas Shari, salt and cotton from the north, iron and ornaments from Ubangi-Shari, tobacco from Brazzaville.

It is African custom that crafts should be hereditary, though, perhaps, more in the tribe than in the actual family. Minerals have been mined long before European advent. The Yakoma, Mondjembo, Batéké, and other tribes (*see* Fig. 55) mine, smelt, and fashion spears, breastplates, and hoes. The miner is not generally the smith, but both are expert in their own way and with their own forges, bellows, pincers, and other tools. This iron-work finds its way not only through French Equatorial Africa but far into neighbouring African territories. The copper collars made by Batéké craftsmen find their way abroad. Indeed, it was copper from here which reached Europe through Tripoli.

It is difficult to limit this central African exchange to any one land. It is not so much internal as general. Who, for example, will say what country could tax a fish caught in the Congo, analyse the exchanges

round about Lake Chad, or even take toll on the native wares up and down the Benue? Enough has been said to show that a moderate internal trade does exist and could be stimulated.

There is also an equal, if not larger, entrepôt trade in European goods. By canoe, or head porter, these find their way into the remotest places, and tend to destroy and supplant indigenous craftsmanship. The rivers and tracks, the canoes and head porters, which further this traffic are described under 'communications'.

MINING

French Equatorial Africa

THE mineral wealth of French Equatorial Africa is extensive, though it has been little exploited.

As long ago as 1882 de Brazza reported the presence of gold, copper, and other metals in the Niari region, and surveys made between 1892 and 1895 showed the presence of iron, zinc, and lead. All these minerals were worked by the natives at a number of different places, though it is, of course, impossible to give any figure for their output. In 1904 a concession for the mines at Mindouli was granted, subject to the concessionnaires building a mineral tramway from there to Brazzaville, a distance of 101 miles. In 1905 the Compagnie Minière du Congo Français (C.M.C.F.) was formed with a capital of 700,000 francs, subsequently increased to 55,000,000. The mineral tramway was closed in 1911 on the completion of the Mindouli-Brazzaville section of the Congo-Ocean Railway.

The C.M.C.F. met with many difficulties. Until 1911 it could neither import Decauville track nor export its products through Matadi. The last war, the blocking of the line from Léopoldville to Matadi, and yellow fever were also serious handicaps. Its concession extended from the West Louvisi to Renévill on the east; where its subsidiary, Congo Mines, had a concession. Two other companies were also soon at work: L'Afrique Minière Equatoriale between the Loudima and the West Louvisi, and the Société d'Exploration Minière Equatoriale between the Bouenza, the Niari, and the Nuanga. In 1929 these three companies combined to form the Consortium Minier Congo-Niari (capital 30,000,000 francs) to guard their common interests and to study their common problems of research and the management.

At Mindouli are found copper sulphide, yielding from 50 to 70 per cent. of copper, copper carbonates, yielding 30 to 35 per cent.,

and pockets of black earth of variable composition. This black earth lies in beds 100 feet thick between limestone and sandstone, and usually contains small quantities of copper, manganese, and silver, which last hardly paid the cost of its extraction. The copper sulphide and the copper carbonates were exported as crude concentrates, but the black earth had to be refined near the pit-head. A small refining plant handled 50 tons a day, and gave good results for copper and

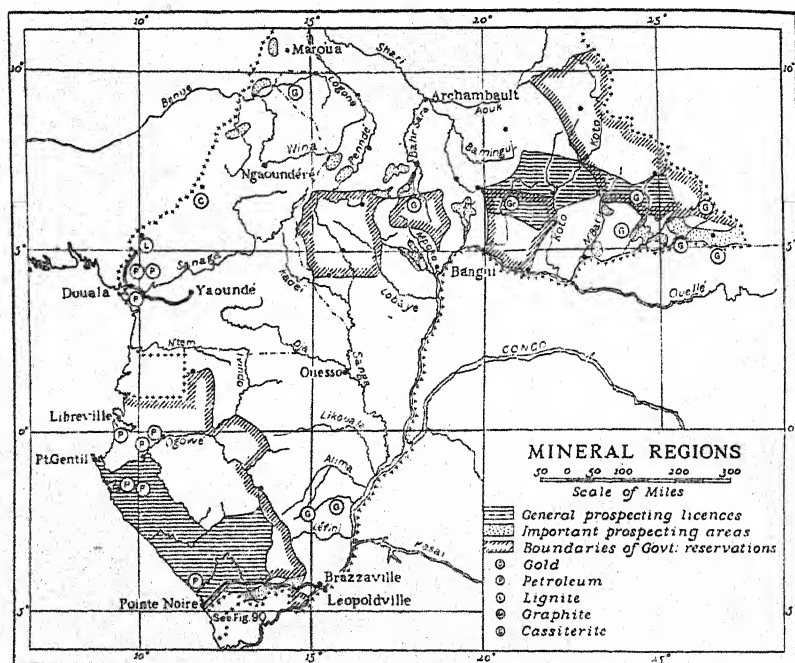


FIG. 89. Mineral areas and concessions

manganese. A 600 h.p. petrol engine provided power for the plant and for the mines. A second plant was ordered, capable of handling 250 tons a day, but it was never delivered. The output of pure metal ranged from 285 tons in 1924 to 600 tons in 1930, and in their prosperous days 170 Europeans and 1,500 native workmen were employed. The fall in the world price of copper led to great difficulties from 1931 onwards, and the Mindouli mines were closed in 1934. Some exports of copper concentrates from the stock piles were, however, made in 1935 and 1936; but in 1938 the Compagnie Minière du Congo Français was reported to be considering the renunciation of

its concession at Mindouli. Nevertheless, in the same year this company formed, in association with the Anglo-American Corporation of South Africa, a subsidiary named the Exploration Minière au Congo (capital 1,000,000 francs) to prospect and exploit deposits of copper known to exist in Gabon.

The mines at Renéville produced copper and zinc until 1937. To provide food for the miners a large farm was established. Ores of zinc and of lead have been found in Moyen Congo, and a first export of 1,512 tons was made in 1937. These ores are worked by the C.M.C.F., and consist of calamine or hemimorphite (zinc silicate) with galena and cerussite. New concentrators have been installed, and production seems likely to expand.

Plans have been made for a more extensive development of the minerals of the Niari basin, although these obviously depend on improvements in transport and in the means of communication. Optimists envisage the possibility of power obtained from the river Bouenza enabling the electrolysis of ores to take place at the mines.

In Ubangi-Shari are to be found graphite, manganese, monazite, titanium (in the forms of rutile and ilmenite), tin, galena, zircons, garnets, diamonds, and gold. Deposits of phosphates have recently been found; they are said to be extensive, but they had not been worked up to April 1940. Diamonds were first discovered in 1915, when a small stone was found near Ippy. A company was formed, but prospected without success for two years, after which operations were discontinued. In 1926 the Compagnie Equatoriale des Mines began operating in this district, and, although no diamonds were found at Ippy, exploitable deposits were encountered 75 miles to the north-east, in the region of Bria. Later prospecting by the same company disclosed more diamonds at two other places in the same area. The great expansion in production in recent years has, however, been due to successful exploitation by the Compagnie Minière de l'Oubanghi-oriental in the Moyen Congo, especially in the Département of Haute-Sanga. These diamond-bearing deposits are closely related to the similar ones of the Belgian Congo. The stones occur in basement conglomerates of Pre-Cambrian age and in stream gravels derived from the conglomerates. The output of diamonds has increased rapidly from 137 carats in 1935 to 17,589 carats in 1938, and is now drawn exclusively from these workings in Moyen Congo.

Although gold was first discovered in the Niari region, most of the present production of that metal is from placer deposits in Ubangi-

Shari. These were worked from 1920 onwards, and in 1933 yielded some 2,500 lb. Troy. Other gold deposits have been found in Gabon as well as in the region of Mayombe in Moyen Congo. Production in 1938 was 3,492 lb. Troy, and was distributed as follows: Ubangi-Shari 1,083; Moyen Congo 1,136; and Gabon 1,273.

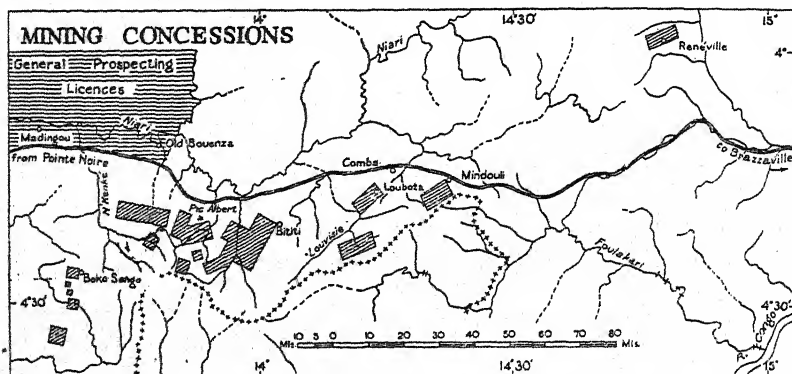


FIG. 90. Minerals along the Congo-Ocean Railway

In recent years there have been several attempts to find petroleum, but none has been successful. Bitumen, extracted at Billangtem on the right bank of the Ogowé, is stated to have been recently used for road repairs in Libreville.

Production of Minerals in French Equatorial Africa

	1935	1936	1937	1938
Gold, lb. Troy	2,555	2,211	1,936	3,459
Diamonds, carats	137	1,998	6,197	17,189
Zinc, tons (40% concentrate) . . . . .	..	..	2,119	3,937
Lead, tons (60% concentrate) . . . . .	..	..	200	2,657
Copper, tons (concentrate)	2,147 (a)	114 (b)	..	..

(a) 42% and (b) 21% concentrate from Mindouli stock piles.

The Cameroons

The first German surveys for minerals were made in 1888, but little was accomplished, either then or subsequently. In 1913 and in 1914 arrangements were in hand for elaborate surveys; these, however, were never carried out owing to the war. No mineral exports took place under the German régime.

In 1924 the French, who had the advantage of the records published by the Germans, started a systematic survey of the mineral

resources of the territory. This survey is still in progress. A geological map was published by the local Service des Mines in 1935.

The following minerals are reported:

- (a) Rutile and Ilmenite near Tchang (Région Noun), and near Banyo (Région Adamaoua).
- (b) Mica in Région Nyong et Sanaga.
- (c) Alluvial gold in the zone Batouri, Betaré Oyé, and Meiganga (near the east boundary of French Equatorial Africa).
- (d) Graphite at Dengdeng and Bindiba (R. Lom).
- (e) Copper round Gutschumi, north of Garoua.
- (f) Wolfram round Garoua.
- (g) Tin in the Adamaoua region.
- (h) Lignite at Tchang.

Before the last war indications of petroleum had been observed near Douala, and since then a zone of 6,000 square kilometres (2,250 square miles) has been reserved for its exploitation by the government.

Five definite *concessions minières* (see p. 285) for fifty years have been granted, all to the Compagnie des Mines Africaines, to work for tin in the Adamaoua région. This work has been going on since 1933. Gold has been mined in the region of Lom et Kadeï since 1934.

In 1938, 663 *permis de recherches* were in force, 526 granted under the decree of 20 May 1928, and 137 under the decree of 5 February 1935. Their regional distribution was as follows:

Adamaoua . . .	329	gold, tin
Benoué . . .	7	gold
Lom et Kadeï . .	300	gold
Mungo . . .	3	gold
Nyong et Sanaga .	5	rutile
Sanaga Maritime .	19	rutile
	<hr/> 663	

Of this total 164 were in the hands of 24 private individuals and 499 in the hands of companies.

Permis d'exploitation (see p. 285) numbered 70, distributed as follows:

Adamaoua . . .	9 gold, 6 tin
Benoué . . .	8 wolfram
Lom et Kadeï . .	47 gold

Fourteen permits for gold were in the hands of private persons, and fifty-six other permits in the hands of companies.

The annual increase in the production of gold and of rutile is very small. This is almost entirely due to the shortage of labour. For the same reason the production of tin remains stationary.

In 1938 four Europeans and four natives were on the staff of the Mines Department, which had its headquarters at Yaoundé. Forty-five Europeans were employed in mining.

Production of Minerals in the Cameroons

	Weight			Value (thousands of francs)		
	1936	1937	1938	1936	1937	1938
Gold, lb. Troy	1,008	1,229	1,065	5,660	10,608	14,496
Tin, tons (78% concentrate)	309	330	310	3,140	5,610	6,389
Rutile, tons (93% concentrate)	54	101	116	80	119	694

INDUSTRY

PRODUCTION

FOR reasons already given, there has been no serious industrial development in either French Equatorial Africa or the Cameroons. In 1911 the Germans set up an experimental station for cotton at Pitoa, near Garoua, in the Cameroons. The French maintained this, and also installed eight hand gins and two presses for the treatment of raw cotton. In 1934 the Compagnie Cotonnière Equatoriale Française was formed with a capital of 15,000,000 francs, and established small works at Lai and at eleven other places in Ubangi-Shari and in Chad. At these factories cotton-seed is distributed to the natives, and the product is ginned, baled, and exported. The numerous proposed irrigation schemes have as their chief object the increased production of cotton; but, as with so many other projects, this depends even more upon improvements in export routes. In this connexion, an agreement has recently been made with the Nigerian Government providing for the export of cotton down the Benue. Cultivation on a large scale could be extended to Haut M'Bomou, if the necessary communications to the coast were available. A little has also been done towards the production of palm oil. At Fernan Vaz there is a factory for its manufacture, and at Pointe Kounda a factory, owned by the Société propriétaire du Kouilou-Niari, produces 10 tons of oil *per diem*. In Likouala Mossaka the Compagnie du Haut Congo has twelve mechanical refineries and eighty hand presses, and controls 20,000 acres of plantations. Before 1914 this company used to export nearly 100 tons

per annum to the Belgian Congo and to the Cameroons; this did not figure in the Customs returns, as there were no Customs posts on the borders of Moyen Congo at that time. Some French writers suggest that progress in the output of vegetable oils has been hindered by the action of international trusts.

On the shore of Prince's Bay, north of Port Gentil, a Norwegian company, Aktieselikapet Congo, has a factory for the extraction of whale oil and for the preparation of guano from bones and offal. In 1913, 10,435 tons of whale oil were exported, and in 1925, 2,091 tons of whale oil and 879 tons of guano. In 1925 and 1926, 402 whales were killed off the coast of Gabon. These large figures caused official anxiety, and an order of 12 April 1927 stopped all whale-fishing for the time being, so as to allow the whales to breed and thus to re-stock the local fishing-grounds.

An industry which has long been of importance, and has possibilities of great expansion, is the timber industry. The forests of French Equatorial Africa cover an area of 175,000 square miles, and those of the Cameroons 66,000: a grand total of 241,000 square miles, or more than four times the whole area of England and Wales. 71·8 per cent. of Gabon and 47·8 per cent. of Moyen Congo are covered by these forests, whose position can be seen from the Vegetation Map on p. 108, and whose approximate northern boundary is lat. 5° N. They are by no means fully exploited, and the forestry service is inadequate. Details of the Forestry Service will be found on pp. 286-7.

Four types of permit to cut timber are granted:

- (1) *Le Chantier*. This is granted to natives cutting small areas not exceeding 1,000 hectares (2,500 acres).
- (2) *Le Coupe Ordinaire*. This is granted to individuals or to companies for areas up to 2,500 hectares (6,000 acres).
- (3) *Le Coupe Industrielle*. This is for areas up to 40,000 hectares (156 square miles).
- (4) Concessions granted by Presidential Decree for areas of more than 40,000 hectares.

On 1 May 1932 there had been granted in Gabon 5 chantiers, 126 coupes ordinaires, 58 coupes industrielles, and two concessions by decree. In the Cameroons in 1938 had been granted 12 coupes ordinaires and 79 coupes industrielles, the individuals and companies concerned exploiting 228,000 hectares (356 square miles) of forest.

The principal species of timber exported is the okoumé or Gabon mahogany. This is not a true mahogany, but a timber somewhat

akin to cedar. It has the great advantage over its protonym of being able to float (density 0.44), and, in a country so poorly off for railways as French Equatorial Africa, this is a most valuable property. It is seldom found far inland or more than 2° N., and it is used for cabinet-work, toys, joinery, inlaying, and plywood. It was first exported in 1889. Before the war, on the quays at Havre round logs of okoumé were worth from 550 to 750 francs per ton, and squared logs from 600 to 800. Okoumé is not found in the Cameroons, acajou and iroko replacing it as the principal woods exported. Ebony is also an important product. Its disadvantage from a commercial point of view is that it is heavy (density 1.2). The natives remove the sapwood, cut lengths of ebony from the larger trees, and saw them up into logs 4 ft. 3 in. long and weighing between 65 and 130 lb. This small size of log renders timber from French Equatorial Africa incapable of competing with that from Madagascar or Brazil, in spite of the good quality of the wood. It is only worth from 1,200 to 2,500 francs per ton. Ebony has long been exported from Gabon, so that good specimens of ebony trees are now rarely found near the old trade routes.

When it is cut in proximity to railways, timber is shipped from Pointe Noire or Douala. A large amount, however, is floated down the waterways to the coast, and is shipped from such places as Port Gentil, Setté Cama, Mayoumba, and Fernan Vaz.

The timber trade gives direct employment to more than 20,000 workers. In Gabon the Consortium Forestier des Grands Réseaux Français had, in 1932, a concession of 3,265 square miles. It employed 40 Europeans and 1,500 natives, used 15 miles of railway line, and exported 35,000 tons of wood, 16,000 of it sawn. The Consortium had 3 steam tugs and 10 barges totalling 1,200 tons. The 9 saw-mills at present existing in Gabon employ 525 workmen and have a total horse-power of 962. They can handle about 40,000 cubic yards per annum. The most important of these is at Makok on the Igombiné; it belongs to the Consortium des Grands Réseaux, and supplies a large number of railway sleepers. There are also some small saw-mills in Moyen Congo and in Ubangi-Shari.

In the Cameroons, besides smaller concerns, the Société Nationale du Cameroun has, near Douala, an important mill, which owns wharves, tugs, and lighters.

As seems to be inevitable, native industries are dying with the advent of the European; but almost every village still has its blacksmith, and native iron-work was carried on until recently at Kélo,

30 miles west of Laï. A little copper is also still worked by primitive methods in the Niari region, and finds a sale until it meets the Belgian product coming west from Katanga. Other native manufactures include those of cloth, pottery, and salt. This last is made on the coast by the Oroungo and the Baloumbo, who pack it in leaves and send it into the interior. Formerly it penetrated as far as 11° E., where the Batéké sold it to the Bavili in exchange for slaves, one slave being worth 7 lb. of salt. In the interior, as far as 14° N., vegetable salt is made from a variety of trees. Mineral salt and natron are found in the Chad territory at Largeau, Bedo, Tekro, Gouro, Ounianga, Ntegeï, and Dimi. Many of these salt-pans are very extensive and the salt of excellent quality, that from Bedo and Tekro being of pure white crystals. The largest deposits are at Dimi, though the salt there is reddish in colour and contains sand. It is transported on camels by Arab tribesmen, who carry it south to Kanem, Ba Tha, and Ouadaï, where it is exchanged for grain, cloth, and animals.

Very few men are wholly employed in any of these native industries.

Power

The rivers of French Equatorial Africa and of the Cameroons could obviously provide an immense amount of water-power, but nothing appears to have been done to harness them to the production of electricity. Various schemes exist on paper, but the most that can be said at the moment is that the larger towns are lit by electric light (*see* Chapter X). Apart, however, from such installations and the very few plants which Government or private firms have erected for use in local works, there are no power stations or anything in the nature of a grid.

Labour Resources

French Equatorial Africa. That the chief impediment to the development of French Equatorial Africa is lack of man-power has been mentioned frequently in previous chapters. The depopulation caused by the slave-trade has been described in Chapter VIII. Chapter VI deals with sleeping-sickness, malaria, infant mortality, and the spread of infection due to increased movement and employment, in gangs, far from home. Amongst the labourers used in the construction of the Congo-Ocean railway mortality varied from 60 per cent. in 1926 to 17 per cent. in 1929. These facts are enough to indicate the seriousness of the labour situation.

Efforts have been made to supplement the local supplies by workers imported from other west African territories, French and foreign

alike. These, however, have labour difficulties of their own, and have not welcomed such proposals. Indeed, even if foreign workers had been imported, they could only have afforded a partial solution of the problem. Except for the mild system of the 'prestations' described in Chapter VIII, labour has been entirely free since 1922; and, by an order of 21 December 1935, replacing earlier provisions on the subject, an elaborate system is provided for safeguarding the recruitment and conditions of contract labour, together with the necessary inspection. No man, for example, may be engaged for work outside his own district except under permit. The Government encourages native agriculture in the hopes of building up a healthy and increasing population; but, in spite of optimistic official assurances to the contrary, it would appear that shortage of labour will postpone serious industrial development almost indefinitely.

The Cameroons. In the French Cameroons an average density of 16 to the square mile, varying from 80 in the Wouri region to 1.4 in Boumba-Ngoko, shows a more satisfactory state of affairs than in French Equatorial Africa. Except for the 'prestation' system described in Chapter VIII, forced labour has been abolished; and contract labour is safeguarded under an order of 14 September 1928, in much the same way as in French Equatorial Africa.

Though the labour situation is easier in the Cameroons than in French Equatorial Africa, it cannot be foretold with confidence that it will prove equal to all demands. The praiseworthy encouragement of native agriculture has naturally reacted on the labour market; and to this, to the extension of European plantations, and to the opening of mines may be attributed the labour crises of 1935, 1936, and 1937. The number of workers known to be engaged in regular paid labour rose from 17,348 in 1932 to 43,261 in 1935, 51,983 in 1936, and 48,691 in 1937.

The report for 1937 gives a full account of the situation. It pointed out that the prices of agricultural products had been rising. This made the land more attractive to the natives and increased their spending power; so much so, that stocks of imported goods were sold out within a few months. Thus the commercial undertakings were not without rivals in their demands for native labour. Increased prosperity also had the unfortunate effect of increasing the number of idlers and vagabonds. Young men found that they were not obliged to work all the year round: they hired substitutes to take their 'prestation', and went to swell the floating population of the towns. At the beginning of 1937 the demand for labour exceeded its supply,

and the economy of the territory seemed to be on the verge of serious dislocation. Action was imperative. A committee was set up under the presidency of the Inspector of Administrative Affairs which included representatives of the Government services, members of the Chamber of Commerce, native chiefs, and manual labourers. This body sought to find the underlying causes of the crisis and to suggest remedies for it. The committee made proposals which, at first sight, seemed to be calculated to retard the development of European enterprise. An order of 25 March 1937, embodying these proposals, declared a temporary suspension of the granting of new agricultural concessions and of new *coupes forestiers*, though old ones were to be renewed. The idle vagabonds mentioned above were to be compelled to pay a heavy poll-tax. It was not possible at the time of the publication of the report to judge the effects of these measures. Furthermore, Labour Bureaux, both central and regional, were established, and were claimed to be giving excellent results. The regional bureaux were said to be functioning as labour exchanges, and to be greatly appreciated by all parties concerned. The number of regular employees had dropped to 46,496 in 1938, but the report for that year considered the crisis to be less acute. The extension of the road system, in particular to Lom et Kadeï and towards Mayo Darlé in Adamaoua, diminished head loading and the number so employed dropped from 314,921 in 1935 to 89,536 in 1938. This must have eased the labour situation, which will be increasingly relieved as roads are extended.

A decree of 17 November 1937, promulgated by an order of 14 September 1938, laid down new laws for the employment of labour. These included the compulsory care of the sick, compensation for the injured, arbitration courts, and minimum rates of pay. It may, therefore, reasonably be concluded that the labour resources of the Cameroons are just adequate to present requirements and to gradual development, but that any attempt to force the pace of the latter would lead to disaster.

Labour statistics are given in Appendix I to this chapter. To illustrate the general situation a short table (actually for the Cameroons only) is given below:

Total population	2,609,508
Total number of natives	2,606,281
Approximate number of able-bodied men	521,256
Days of paid labour on public works	1,398,562
Total number of carriers	33,275
Number of days of portage	245,970

FINANCE

'FINANCE' is a conventional heading covering a number of topics which bear no more relation to each other than they do to other economic subjects, such as international trade, the national income, industrial development, &c., but which it is usual to group together. The main topics under this conventional heading are public finance, the currency and banking system, and the provision of credit through channels other than the banks.

Public Finance

The public finances of the French colonies are regulated by four separate budgets or kinds of budgets—the French Metropolitan Budget, the ordinary local budgets of the colonies themselves, the separate capital or special accounts in the colonies, and accounts of various colonial public enterprises, such as railways and ports.

The vote of the Ministry of Colonies in the budget of France provides for much of the general costs of military defence and civil administration (including the general administration of railways, ports, &c.), and provides subsidies and repayable advances towards the costs of social services, &c., borne by the local budgets. This vote amounted to 847 million francs in 1938 and 1,103 million (about £6·2 millions) in 1939, in which year some 84 per cent. of the total was for military purposes and 16 per cent. for civil purposes. This vote is provided out of French national revenue, with the exception of small contributions, amounting to 54 million francs (6·3 per cent. of the total) in 1938 and 65 millions (5·8 per cent. of the total) in 1939, which are paid out of the local revenues of the colonies themselves. The apportionment of these contributions among the colonies is interesting as reflecting the official estimate of their relative taxable capacities. In 1939 French Equatorial Africa was called upon to provide 1·2 per cent. and the Cameroons to provide less than 0·6 per cent. of the total of these contributions. They provided nothing towards military expenses, but $7\frac{1}{2}$ per cent. and rather less than 3 per cent. respectively of the total colonial contributions to civil administrative expenditure, and 10 per cent. and 3 per cent. respectively towards the Inter-Colonial Sinking Fund.

The apportionment of these contributions does not correspond to that of the Ministry of Colonies' expenditure, so that no inference as to the benefits which the separate colonies get from the ministry's vote can be drawn from it. French Equatorial Africa indeed received

both in 1938 and 1939 some three-quarters of the ministry's total subsidies and repayable advances in aid of colonial budgets, so that, being a poor colony, it was subsidized more than the others.

The colonial budgets themselves are much larger in the aggregate than the Ministry of Colonies' vote. For all the colonies together (or rather for all those under the Ministry of Colonies) the total of general and local budget estimates of expenditure for 1938 was 3,338 million francs. In French Equatorial Africa there has, since 1934, been only one budget, not (as was the case before that date, and as still is the case in French West Africa and Indochina) a General Budget and separate local budgets for the constituent colonies (Ubangi-Shari, Chad, Gabon, and Moyen Congo). The Cameroons has, similarly, a single budget. The budget of French Equatorial Africa for 1938 provided for estimated expenditure of 225 million francs and that of the French Cameroons for 108 million francs—sums equal to 6·7 per cent. and 3·2 per cent. respectively of the total ordinary budgets of all the colonies.

In addition to this, however, there was an estimated expenditure on capital account of 88 million francs in French Equatorial Africa and of 12 million in the Cameroons (the capital being, of course, raised in France), and a more or less self-balancing expenditure of 26·5 million francs on account of the Congo–Ocean Railway, and of 30·5 million on account of the railways and ports in the Cameroons. Thus the total public expenditure budgeted for in French Equatorial Africa and the Cameroons together in 1938 was about 490 million francs, plus some small portion of the 748 millions spent by the Ministry of Colonies otherwise than in grants-in-aid already included in the colonial budgets. The total must therefore have been rather more than 500 million francs (equivalent to about £2·9 millions).

The expenditure of this sum was, very roughly, divided as follows:

Debt Service	88 million francs
Social Services, Public Works, Public Utilities, and Economic Assistance	190 " "
Railways (a more or less self-balancing item)	56 " "
Police, Justice, Pensions, Miscellaneous, and Administration	155 " "

Plus an undetermined amount representing these colonies' share of the Ministry of Colonies' expenditure on defence and general administration.

The principal sources of this money (excluding that provided for by the self-balancing railway budgets and the Ministry of Colonies' expenditure on defence, administration, &c.) were roughly as follows.

Direct taxation	72 million francs (of which 60 or more were from the native Head Tax)
Customs	118 " "
Land, forests, mines	14 " "
Stamps, &c.	7 " "
Miscellaneous internal sources	35 " "
Loans	100 " "
Subsidies from France	81 " "

For the Cameroons there exists an interesting analysis (for years up to 1937) of the origin and destination of public money. The total receipts in that year from all sources, including loans and the railways, were 138 million francs, against an expenditure of 100 millions. The revenue raised from African sources (32.6 million francs) was almost exactly the same as the expenditure to African recipients: expenditure to European recipients (34 million francs) was nearly twice as great as the funds derived from European sources, but the revenue from 'mixed' sources (most of the earnings of the railways, and most of the indirect taxation) was 87 million francs as compared with an expenditure to 'mixed' destinations of only 34 million. This analysis must not, of course, be taken as indicating the relation between the ultimate benefits received by the European and the African native communities respectively, and the burdens imposed upon them. It would be very difficult, if not impossible, to make an estimate of that kind. For the two colonies together, however, it is possible to compare the debt interest of 88 millions, which is the main payment made out of the territories in 1938 in return for no current benefit, with the 181 million francs paid into them as loans and subsidies to which should be added their share of the general military and administrative expenditure of the Ministry of Colonies. It appears that the native and European communities in these colonies together were receiving, through public channels, a net amount of somewhat more than 100 million francs' worth of goods and services for which they were not currently paying.

Currency and Banking

The currency in French Equatorial Africa and the French Cameroons is that of France, though it does not seem certain that the old native currencies have entirely ceased to circulate in remote districts. The power of note issue for these colonies is confined to the Bank of French West Africa, which serves French West Africa and Togo in addition. Three-quarters of its note issue is in French West Africa, and the amounts of its notes in French Equatorial Africa and

the Cameroons in May 1939 were 179 million francs and 71 million francs respectively. The combined circulation in the two colonies increased by 52 per cent. between 1935 and 1938, but this was a very much smaller increase than the concurrent doubling of the total note-issue of the bank, and, indeed, smaller than the concurrent increase in French prices, both retail and wholesale. It seems, therefore, that the currency in circulation in these colonies was not increasing appreciably in total purchasing power, and was lagging behind the increase in the neighbouring territory of French West Africa.

The Bank of French West Africa has its main establishments for the two colonies at Brazzaville, Port Gentil, Libreville, and Douala, from which it transacts ordinary banking business, in addition to its function of bank of issue. The Bank of British West Africa also does considerable business in the Cameroons (its local headquarters being at Douala), while the Banque Belge d'Afrique does banking business in French Equatorial Africa, and the Banque Commerciale Africaine operates in both the colonies.

The provision of credit for agricultural purposes, however, is mainly in the hands of special organizations, and, with a few exceptions, such as the Crédit Foncier de l'Ouest Africaine (a private enterprise with its headquarters at Dakar and an agency at Douala, which helps to finance European planters in the Cameroons), and three native coffee-growers' co-operatives in the Noun district of the Cameroons, they are Government controlled and sponsored. In each of the two territories there is a Caisse de Crédit Agricole, which finances European planters, but their operations are on only a small scale. That in French Equatorial Africa granted fresh advances to the amount only of 180,000 francs (little more than £1,000) in 1938, the total advanced since its inception (in 1931) being only 5 million francs, four-fifths of which was granted in connexion with coffee growing. The rate of interest was fixed for that year at 3½ per cent. for medium term debts and 4 per cent. for those of short term. In the Cameroons, the advances made by the Caisse de Crédit Agricole in 1938 totalled 367,000 francs, the total granted since the foundation of the institution being nearly 3·9 million francs. Of this amount, 1·3 million francs had fallen due (only about half of it, however, having been repaid) by the end of 1938.

For native cultivators, there have been established provident societies (*Sociétés de Prévoyance de Prêts et de Secours Mutuels*), which have been described in the chapter on administration (*see p. 296*). Their turnover in the Cameroons amounted to rather more

than 5 million francs during that year, and their balance at the end of it was 1.7 million francs.

As to long-term capital, by far the greater part of it has been invested in public enterprises under a French Government guarantee, and practically the whole of it, of course, comes from outside the colonies. It has been estimated that the total foreign capital invested in French Equatorial Africa between 1870 and 1936 was equivalent to £21,260,000, of which £15,240,000, or 72 per cent. was public listed capital. For Togo and the Cameroons (the territories are not separated in this estimate) the total invested from abroad in this period is given as £18,624,000, but £15,827,000 of this is German capital invested before 1914.¹ By the end of 1938, the public borrowings of French Equatorial Africa and the Cameroons respectively from the beginning amounted to 1,541 million and 56 million francs respectively. Of this total of 1,597 million francs, 1,247 million was for the Congo-Ocean Railway and the development of Pointe Noire, while about 19 million francs had gone to the development of railways in the Cameroons. The total borrowed capital spent on health services up to the end of 1937 was about 75 million francs in French Equatorial Africa and 7½ million in the Cameroons.

The chief impression left by a cursory survey of the finances of these two colonies is that, as compared, at any rate, with British territories in the same region, they have been relatively heavily assisted by subsidy and loan. Total public expenditure in and on them in the immediate pre-war years (excluding the self-balancing expenditure of the railways, &c.) has, indeed, been of roughly the same magnitude, per head of the population, as in Nigeria, but the proportion of it covered from colonial revenue has been considerably smaller, and the proportion covered by external borrowing and subsidies correspondingly greater. The ratio of private to public investment has, moreover, been much lower in these colonies than in surrounding territories, including French West Africa. These facts are consistent with the general economic picture of the two colonies—relatively poor and backward areas which vigorous public action (largely German action before 1914 in the case of the Cameroons) has attempted to bring into line with their more prosperous surroundings.

¹ See Frankel, *Capital Investment in Africa*. The various loans are converted in sterling at the rates of the dates when they were made.

APPENDIX I

Labour Statistics

These refer to the Cameroons only, but probably reflect conditions in French Equatorial Africa fairly closely.

1. *Wages paid in 1938 (francs per month)*

	<i>Labourers</i>	<i>Chauffeurs</i>	<i>Domestic servants</i>
Adamaoua . .	45	..	35-150
Benoué . .	60	800	..
Boumba-Ngoko .	30-35	..	60-100
Haut Nyong . .	25-50	..	30-150
Kribi . .	75	600-800	100-130
Logone . .	35-75	..	80-100
Lom et Kadei . .	30-45	..	60-100
Mandara . .	..	..	30-150
M'Bam . .	25-75	..	40-140
Moungo . .	75-105	..	50-175
N'Kam . .	45-80	250-300	80-130
Noun . .	45-75	350-500	40-125
N'tem . .	45-60	..	45-150
Nyong et Sanaga	60-120	275	40-120
Sanaga Maritime	75-120	..	40-150
Chari . .	..	..	..
Wouri . .	90-130	..	75-150

Skilled labourers were paid in proportion to their ability, in extreme cases up to 450 francs; the wages of foremen were from $1\frac{1}{2}$ times to twice those of labourers; and those of overseers and of factory executives ranged from 90 to 2,000 francs.

2. *Numbers of workmen in 1938*

	<i>No. of labourers</i>	<i>Days of 'prestation'</i>
Adamaoua .	1,840	117,580
Benoué .	528	136,500
Boumba-Ngoko .	325	34,820
Haut Nyong .	2,375	38,690
Kribi .	2,005	101,550
Logone .	40	361,736
Lom et Kadeï .	4,830	161,155
Mandara .	8	404,410
M'Bam .	513	184,800
Moungo .	8,686	239,609
N'Kam .	500	41,040
Noun .	8,072	467,503
N'tem .	1,807	223,760
Nyong et Sanaga	4,660	787,320
Sanaga Maritime	5,380	122,530
Chari .	..	40,000
Wouri .	4,926	12,170
	46,495 ¹	3,475,173

¹ 10 per cent. of these were engaged under contract.

3. *Porterage by head loading in 1938*

	<i>Administration</i>		<i>Private enterprises</i>		
	<i>No. of carriers</i>	<i>Days of porterage</i>	<i>No. of carriers</i>	<i>Days of porterage</i>	<i>Native population</i>
Adamaoua .	700	8,500	1,200 ¹	18,000	157,702
Benoué .	2,328	17,154	300	3,000	153,970
Boumba-Ngoko .	563	7,272	75	1,500	20,902
Haut Nyong .	3,820	6,326	435	4,000	79,960
Kribi .	515	6,000	150	600	50,643
Logone .	2,452	27,206	20	3,600	374,066
Lom et Kadeï .	450	3,470	800	4,850	90,967
Mandara .	1,547	9,362	104	1,932	172,983
M'Bam .	910	7,462	16	320	114,067
Moungo .	121	404	20	80	72,315
N'Kam .	360	3,060	..	..	51,347
Noun .	4,320	32,739	8,569 ¹	51,414	427,307
N'tem .	578	6,958	..	..	152,125
Nyong et Sanaga	1,185	14,215	..	..	457,161
Sanaga Maritime	1,340	4,582	70	240	157,215
Chari .	327	1,724	..	..	31,739
Wouri .	..	..	..	..	41,812
	21,156	156,434	11,759	89,536	2,606,281

¹ These figures are due to the transport of tin ore via Fouban.

4. Rates of Pay

An order of 5 January 1938 fixed the following minimum rates of pay for native workmen in francs *per diem*:

	Francs	
Adamaoua	1.25 plus	food ration
Benoué	1.00 including	„ „
Boumba-Ngoko	1.00 plus	„ „
Haut Nyong	1.20 „	„ „
Kribi (Kribi and Lolodorf) ¹	2.50 including	„ „
Logone	1.00 „	„ „
Lom et Kadeï { Betaré Oyé	1.20 plus	„ „
{ Batouri-Bertoua	1.00 „	„ „
Mandara	1.00 including	„ „
M'Bam { Bafia	1.50 plus	„ „
{ N'Dikiniméki	1.25 „	„ „
{ Yoko	1.00 including	„ „
Moungo	2.00 „	„ „
N'Kam { plantation workers	1.20 plus	„ „
{ forest workers	1.80 „	„ „
Noun { hired locally	1.50 including	„ „
{ hired through labour bureau	2.00 „	„ „
N'tem { Ebolowa-Djoum	1.50 plus 0.50 in lieu of ration	
{ Sangmélina	1.25 „ 0.50 „ „	
{ Ambam	1.00 ² „ „ „	
Nyong et Sanaga { Yaoundé, Akonolinga, Nanga- Eboko	1.75 including food ration	
{ M'Balmayo: plantations	2.50 „ „ „	
{ M'Balmayo: forests	2.50 „ „ „	
Sanaga Maritime	2.50 „ „ „	
Chari	1.25 „ „ „	
Wouri	3.00 „ „ „	

¹ Pay in the Campo district is 50-60 francs per month plus food ration.

² Plus 5.00 francs per week in lieu of food ration.

The food ration was laid down as follows:

Macabo or manioc	6.60 lb.
or Manioc flour	2.20-3.30 lb.
or Bananas	4.40 lb.
or Rice	1.43 „
Fresh cheese	0.44 „
Salt	0.04 „
Oil	0.11 „

CHAPTER XIV

COMMUNICATIONS

(See Map 2 in the end pocket)

TRAVEL and transport still follow mainly the caravan routes, native tracks, and inland waterways in use before French occupation. The caravan routes, followed by the traffic of the desert and the pilgrims to and from Mecca, are dictated more by water supply than by surface. Native tracks, more and more tortuous as one enters the forest belt, chosen in the first instance for inter-village convenience, diverted to skirt a fallen tree, beaten hard by custom and innocent of alinement or grading, are generally impassable by car. Along them travel the head porters, pack donkeys or oxen, and wandering pedlars. On the rivers and Lake Chad, when there is sufficient depth of water, travellers and merchandise find an easier way by canoe. Yet, on these waterways, falls and rapids, to be found on every river of Black Africa, interrupt and lengthen the voyage.

Over wide areas penetration has improved rather than redesigned these primitive communications. The caravan routes of the north are much as they were. The tracks, first made possible here and there for the passage of the official, are gradually improved in surface and alinement till a powerful car, with good clearance, can pass in the dry weather. But even so altered, little traffic is possible and radical realinement and regrading will be found necessary wherever lorries must go.

One or two main roads have been made and well surfaced, and secondary roads connect minor centres. The main waterways now have some steam traffic and the lesser ones steel or wooden whale-boats. Lately have come the few railways mainly designed to carry trade from Brazzaville to Pointe Noire or from the Cameroons to Douala. Last of all have come airways, doing a month's trip in a day, and now, in war, traversing the country from east to west and from north to south. Communication may, however, be by signal rather than in person, and cables, telegraphs, telephones, and wireless are described last.

NATIVE COMMUNICATIONS

Caravan Routes

From the extreme north to lat. 14° N. on the western frontier, and 10° N. on the eastern, pilgrim routes and tracks remain largely untouched. For very long stretches they lead over open country, everywhere passable in dry weather. Then they may pass over broken stony country where movement off the track is impossible. Water supply is the great difficulty and Figs. 27, 28, 29 of Chapter II should be studied. Normally goods are carried on camels, donkeys, or pack oxen, but it may often be necessary to supplement these by head portage. Camels seldom come farther south than 14° N. These pack dromedaries will sometimes carry a load of 500 lb. (safe general load 300 lb.), but are not worked for more than four months of the year and are delicate, especially if taken into unfamiliar climatic or surface conditions. Donkeys come farther south, down to lat. 9° , and carry 120 lb. Pack oxen are very slow and carry no more than 100 lb. or so each. Nevertheless there are said to be over a hundred thousand oxen used for pack. All these pack animals are confined to the north because all fall ready victims to the tsetse-fly, and do not enter the forest belt.

Throughout this area there is no all-weather surfaced road although, north of 14° lat., some of the tracks are unaffected by floods.

Tracks

Many of the roads shown upon the topographical map in the end pocket are neither more nor less than native tracks. They are not designed for anything more than pack transport, and their main characteristics are that gradients are often impossibly steep for mechanical transport, that curves are sudden, and that deviations go round any and every obstacle. Where pack animals fail, south of 9° N., goods are carried along these tracks by head porters (normal load about 45 lb.). It has been stated that to carry 100 tons per month over 100 miles requires 2,000 men; with less authority perhaps the cost of a ton-mile has been given, comparatively, as 2*d.* by rail, 9*d.* or 10*d.* by camel, 1*s.* by motor truck, and 2*s.* 6*d.* by head portage. These figures refer, of course, to central African conditions. The drain upon an entirely insufficient man-power is enormous, and the work is arduous and unpopular. In more advanced parts of the Guinea coast it is already difficult to find porters. Yet everywhere

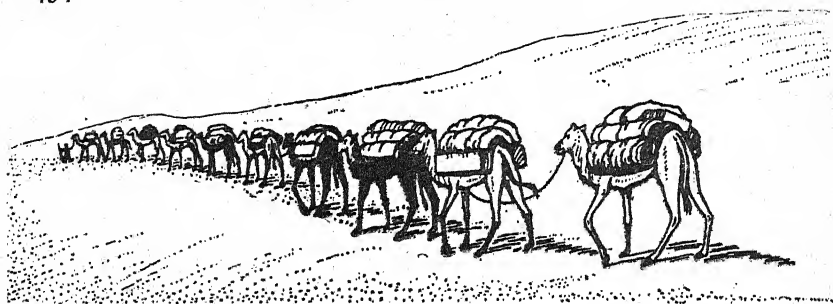


FIG. 91. *Pack transport: camels*

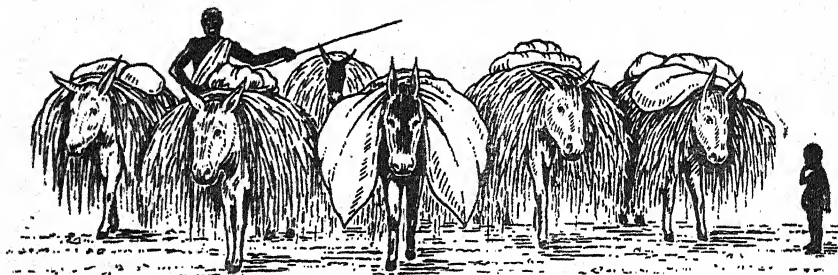


FIG. 92. *Pack transport: donkeys*

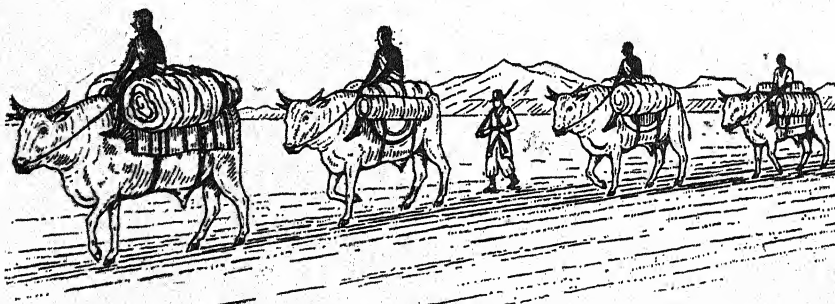


FIG. 93. *Pack transport: oxen*

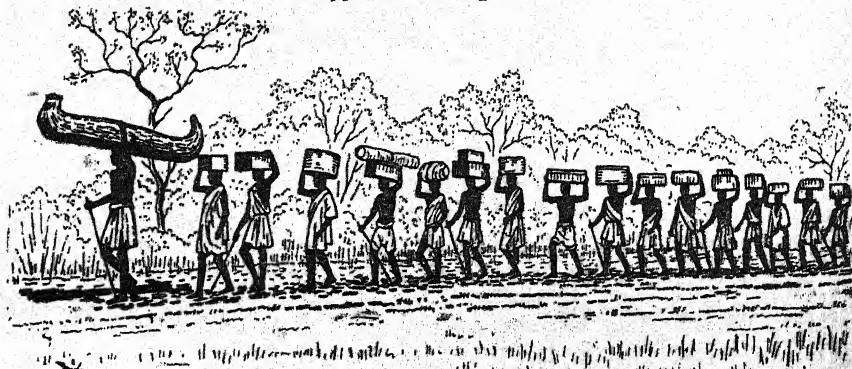


FIG. 94. *Pack transport: head porters*

off railways, made roads, and navigable waterways the head porter is a necessity.

No elephants north of the Congo have been trained for service. Obviously, as an elephant can carry a load of over a thousand pounds, their use in transport could be a great saving of man-power.



FIG. 95. Canoes: the 'Chad' rush canoe

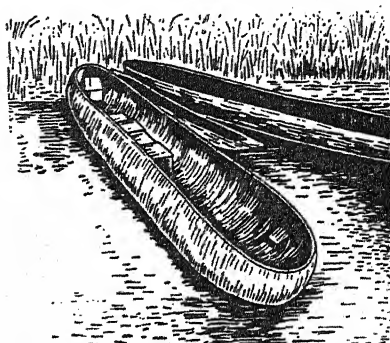


FIG. 96. Canoes: dug-outs



FIG. 97. Canoes: shooting rapids

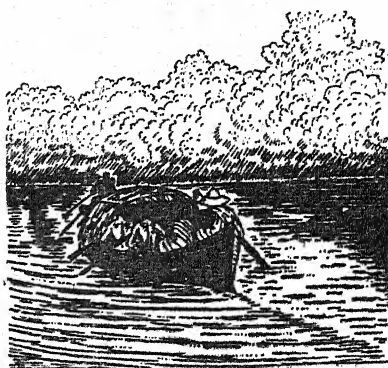


FIG. 98. Canoes: a steel whale-boat

Canoes

Water communication and transport is usually both seasonal and slow. On the Congo, Ubangi, and Sanga, traffic is more or less continuous, as it is upon the lower, and parts of the upper, reaches of the Ogowé, Likouala, Alima, and Benue. Even on these it is interrupted by rapids or falls.

Canoes vary greatly in size and design. On Lake Chad, for example, they are often made of reeds, lasting but a year. In forest areas the

commonest form is the dug-out, but the best are made of hewn planks sewn together with creepers. They vary in length from a single paddler of 7 or 8 feet to a dug-out of 80 to 100. Generally they are no more than 3 feet wide and rarely draw more than 18 inches. They are paddled or poled, or both, and will travel 20 miles a day against the current. The longest will take up to 50 paddlers. Some will carry 100 passengers and crew. On easy stretches they will take 150 lb. of cargo per paddler, if there are no passengers. If there are rapids to shoot about 80 lb. per paddler.

MODERN COMMUNICATIONS

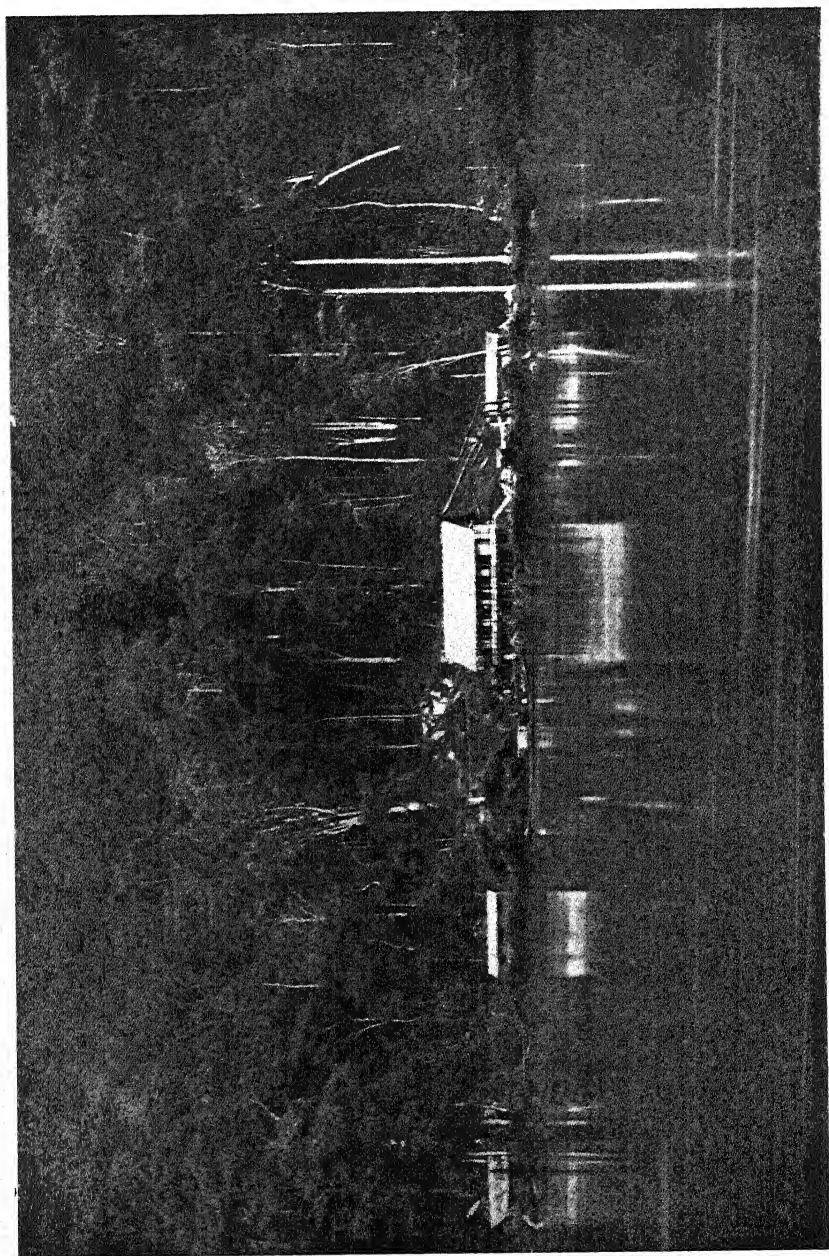
INLAND WATER TRANSPORT

FRENCH penetration from the sea was mainly by river and it was by the Ogowé that it reached the marshy plains north of the Congo. The extent to which movement is still dependent on inland water transport can be seen at a glance upon the map of communications in the end pocket. The road systems are quite insufficient in themselves. It is obvious from the map and from what has already been said how badly these waterways are hampered by falls and rapids; yet it is equally obvious that stretches of a hundred miles between portages are common enough. Much has been done to improve transport upon these rivers, although little in the way of providing locks to save portaging. Whale-boats and steel canoes are in use on most rivers. They carry from $2\frac{1}{2}$ to 4 tons of cargo each, and seem to be supplanting native canoes. Various companies and individual planters have motor boats.

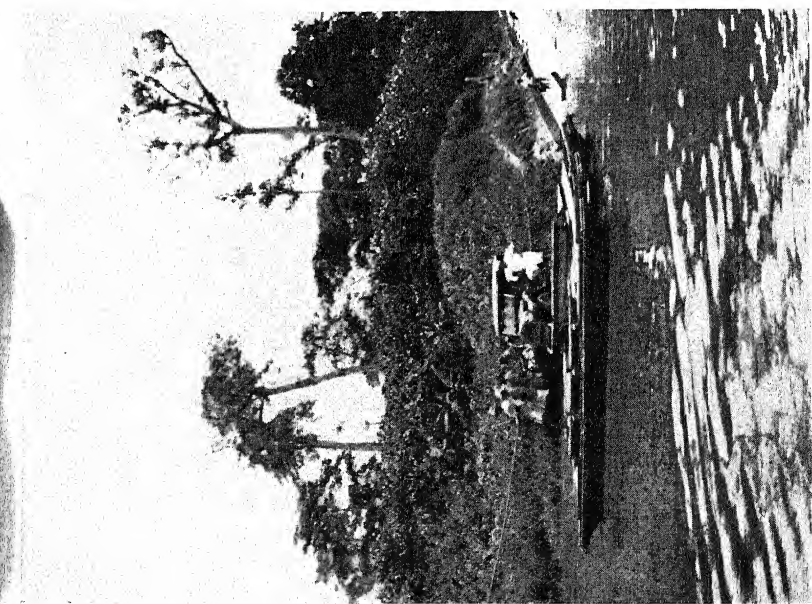
On the lower reaches of the Ogowé, Ngounié, and Eliva Nkomi the Chargeurs Réunis employ two stern-wheelers of 180 and 150 tons register respectively. These two vessels draw 5 feet and supply to, and collect from, smaller river-craft operating higher up. The Société Gabonaise d'entreprise et de transports working up to Ndjolé, and to Boué when water permits, has several small steam craft of from 12 to 15 tons and a smaller one of 6 tons. These supply to, and collect from, smaller craft on the upper Ogowé, Livindo, and Ngounié. A steamer of 12 tons was taken round the falls at Boué, over $2\frac{1}{2}$ miles of portage, to operate as far as Lastoursville.

In the Gabon estuary the 'Consortium forestier' has 3 tugs and 10 barges each carrying 120 tons.

Naturally the Congo, north and east from Stanley Pool, carries the



53. *An Inland Waterway. The Ogowé at Ndjiclé*



54. *A Ferry*



55. *A Track in the Savanna*

greatest volume of water-borne traffic. French trade, in transit at Brazzaville, reached 32,200 tons in 1930, whilst on the Ubangi it reached 4,000 and on the Sanga 1,000 tons. The Compagnie générale de transports has a flotilla of 810 tons of steamers and tugs, and owns several slips and wharves. Indeed from Brazzaville there are 3,300 miles of navigable waterways to serve. To get steam river-craft on to the northern rivers, the Shari, the Logone, and their tributaries, is vastly more difficult. The famous Léon Blot (p. 237) was the first to appear on the Shari. There are now three passenger steamers plying on the Shari. Two of these can take 10 tons of freight each, the third 5 tons. Navigation for them is possible only from August to December. There are, however, about a dozen tugs on these waters, and barges in tow can usually reckon on a much longer season. Generally speaking there is enough water for them from July to May inclusive. The total tonnage available (steamers and barges) is about 600 tons. This total can be expanded by rafting and canoeing, for there is always enough water for canoes. The Logone (navigable up to Goré) is not much used. The Shari and its tributaries are navigable, at times, to the confluence of the Gribingui and Bamingui; up the Bahr Sara to Batangafo, and, on occasion, over Lake Chad to Bol.

The Benue provides a valuable channel for the trade of the Chad basin. At Garoua the Benue is navigable only in September and October, but goods find their way, by pack, porter, or road, down the Benue to the varying limit of navigability, and from there to the populous and comparatively wealthy towns of southern Nigeria. River steamers do not travel by night, and although they give cheaper and far more efficient service than canoes they do not, generally, exceed twice their pace.

ROADS

(See Communications Map in end pocket)

The first beginnings were no doubt to improve native tracks for the needs of administration and trade. Later deliberate road building has been to provide communication where river transport was impossible—as from Yaoundé to Bangui—or to make journeys possible when rivers are too low in the dry weather—as from Fort Archambault to Fort Lamy—or to tap mineral areas—as from Brazzaville to Pointe Noire. Then traffic through Central Africa began, though in



FIG. 99. *A track in the forest belt*

modest fashion, and there are several possible routes from the far north, across the Ubangi and Congo, to the far east and south of the continent.

In considering them all, several main factors must be borne in mind. Firstly, for many purposes and in many areas, roads are seasonal and must continue to remain so in a land of vast floods. Secondly river crossings are innumerable and bridges few. The ferries which occur on almost every road are impediments to continuous traffic. Lastly, the laterite with which almost all the better roads of black Africa are faced is not everywhere available, and occasional long stretches of sand or of black cotton soil add difficulty. Laterite is not available in those basins and coastal areas where sand, clay, or black cotton soil overlie the ancient platform. It is, of course, in these very areas that floods are common and roads, if not specially built, become impassable. It is also in these areas that inland water transport may come to the rescue, but in that case there is a period after rains start, and before rivers rise enough to carry boats, when neither road nor river will serve. Thus in the lower Shari basin all traffic used to cease for six weeks (mid June to beginning of August) before the embankment of the Fort Lamy-Fort Archambault road was completed, and for all practical purposes still does so.

The better roads are soled with rock and faced with fine, or crushed, laterite where it is available. In the 'basin' areas they are made up of sand, gravel, and clay and kept in action by road gangs perpetually at work. Natives living along these roads are expert in their repair. After heavy rain roads such as these are normally closed for forty-eight hours.

One road only crosses all rivers by bridge. This is the Bangui-Archambault road. Most of the other roads have bridges, some indeed have many, but all have occasional ferries. These are wooden platforms carried on steel barges or on canoes, and the latter are in the great majority. They are sometimes 'swing' driven with side ropes and wheel blocks to act against the current, sometimes poled and sometimes paddled. Often it is awkward to get on to or off the platform, for the river-banks may be steep and the roads down them curved. The lower the river the greater, naturally, is the difficulty of boarding the ferries. The earlier bridges are naturally wooden, and require fairly frequent repair. On the better roads material for repair is stored by the bridge. Later built bridges are generally reinforced concrete.

Flood difficulties are worst in the Chad areas, firstly because the

country is flat and the floods widespread, and secondly because laterite fails here and sand or cotton soil impedes traffic. As a first stage in protection against floods, small embankments and subsidiary and minor ferries are built. A second stage is the construction of a convex causeway and the third high embankments carrying the road above flood-level. This stage is characteristic of the first 26 miles on the Fort Archambault-Bangui road. Gangs are perpetually busy raking over and repairing this stretch of high embanked and sandy surface. Roads lightly banked may be impassable from mid June to December, whilst the floods of the Logone and Shari generally last from late August to mid December. It is wise to avoid the side of the road during wet weather because there are, generally, deep ditches, and some danger of the road edges subsiding into them.

Conditions of climate and surface along the coastal plains, and in the low-lying marshy areas north of Brazzaville, through which the Sanga and the two Likoualas meander to the Congo, are very similar to those of the Chad area.

On the watersheds and plateaux, and south and east of the Ubangi in the Belgian Congo, conditions are better. Surfaces are of laterite, though seldom very durable; river crossings are fewer, and flood perils absent.

Only on two roads can 100 lorries pass *per diem* without speedy ruin to the roadway (*see map*).

On the other hand there is generally room for two vehicles to pass each other, except at the very rare bridge. Where distances are so vast and labour so difficult to congregate, it is impossible to keep the road network everywhere fit for continuous traffic. Given notice, however, any one or two main roads may be kept in action for some time.

Rest-houses are a common feature, but vary greatly in comfort and cleanliness. They are usually under the charge of the village headman, and reflect his particular interest and efficiency. Stocks of petrol are reported (in 1942) to be adequate for continuous traffic and are kept in 200-litre drums.

The Road Network

The three centres from which motor road-traffic enters French Equatorial Africa and the Cameroons are respectively Maidugari, Douala, and Pointe Noire. In that same sense Abéché in the north, and Bangassou, on the river M'Bomou, are the only centres of exit.

DIAGRAM
OF
ROAD SYSTEM

Miles 50 0 50 100 150 200 250 Miles

Points of Entry ABC
The Triangle XYZ

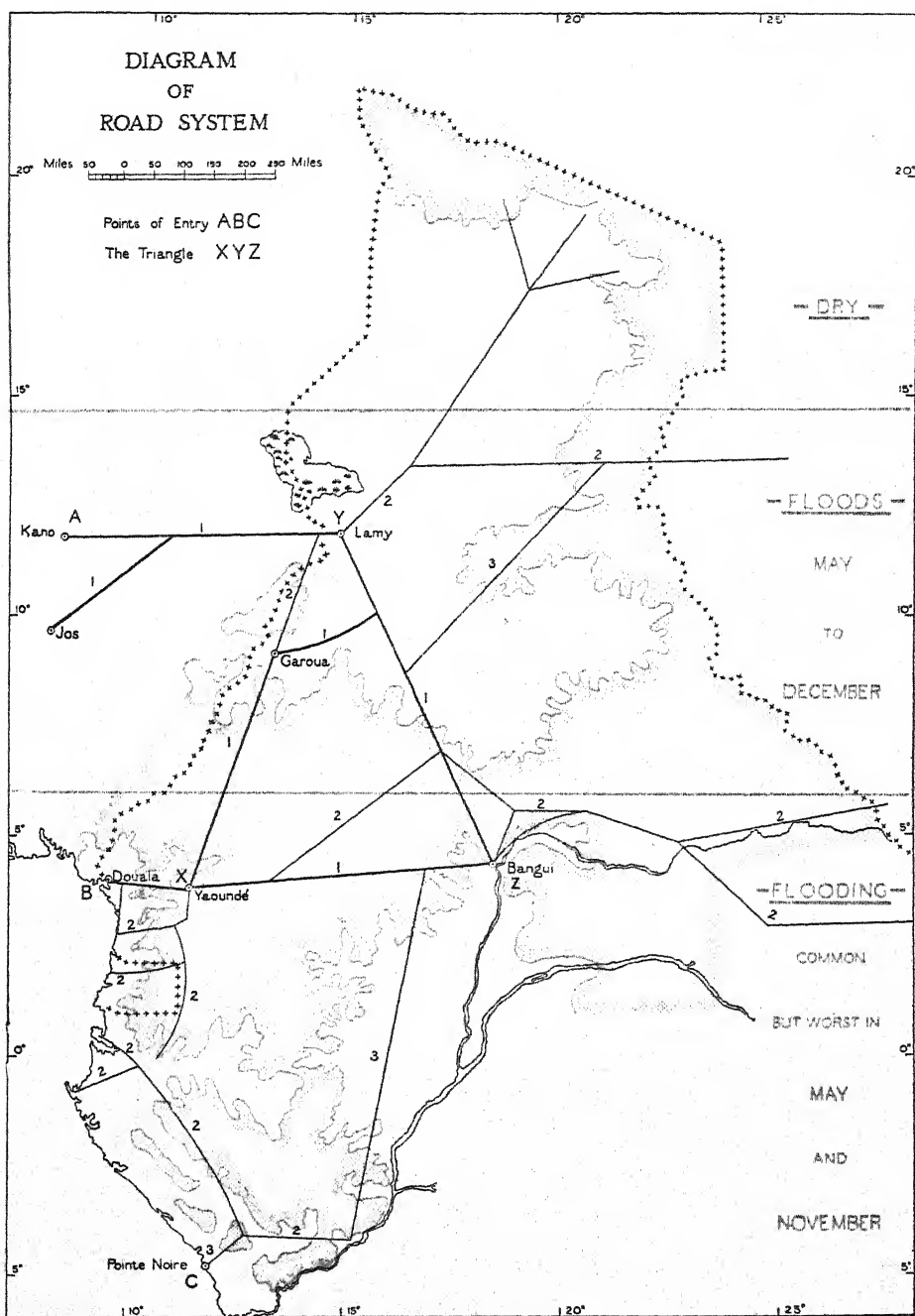


FIG. 100. Road diagram. Ground 1,500 feet, or more, above M.S.L. is shown in brown

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In very recent times (1942) a lateral coastal road connexion from Pointe Noire to Douala has been under construction and nears completion. Port Gentil, Libreville, Bata, and Kribi will gain, but landing facilities are poor at all these undeveloped ports, and traffic on this road will serve local rather than general purposes.

The most beaten track in the Sudan is that which passes through Timbuktu, Kano, and Lamy carrying the pilgrims to Mecca. There is a poor alternative track north of Lake Chad, passing through Nguigmi and Mao, but it was along the main southern track that almost all traffic passed across the Chad area. Fortune has placed Timbuktu and Fort Lamy under the French flag, Kano under the British, but political division has not altered geography. Indeed the Lagos-Kano and Lagos-Jos railways have but added importance to this entry. Actually by rail and car Fort Lamy is but four days' journey from Lagos. Up to quite recent times (1940) this ancient Kano-Maidugari-Fort Lamy road was impassable from May to December. It is now being reconstructed, but some years must elapse before it is completely all weather. A safer way of entry by road is, however, from Jos (on the Bauchi plateau of Nigeria). From Jos to Potiskum the country is not subject to floods, and the road is all weather. The Potiskum-Lamy stretch remains seasonal as described above.

A second road, that to Fort Archambault, leaves the Kano-Fort Lamy road at Maidugari, passes through Maroua and, turning left before reaching Garoua, passes through Léré, Moundou, and Doba. This road is seasonal from Maidugari to Guider, and from Moundou to Archambault. It crosses the Bahr Sara by ferry and the Shari by bridge.

The third runs down the Cameroons from north to south. On the road previously mentioned, from Maidugari to Fort Archambault, Mora is 93 miles south-east of Maidugari. From this point to Garoua there is a choice of route between the difficult mountain track through Mokolo and Boura and the easier curves and gradients of the usual but seasonal road through Maroua and Guider. The communications map shows how the former route connects to Jos over Nigerian roads which are all weather but, at present, undeveloped and rather dangerous. From Maidugari to Yaoundé is about 900 miles, and the stretch from Garoua southwards, though good and all weather in surface, has sharp bends and gradients.

From the nature of things Douala is not a centre of road-traffic, for it is surrounded by waterways. From it there are only two good

routes, the first to Yaoundé and so to the main road system, the second to Edéa, Kribi, Ebolova, and so south to the coastal ports of Gabon. The direct road to Yaoundé is of quite recent construction, but is faced with laterite or earth, and is reported to be as good as any in the territory. Details of its bridges, ferries, and traffic characteristics are not known.

An alternative to the direct Douala-Yaoundé road is a detour by Kribi and Ebolova (where the coast road to the south turns right) and so north to Yaoundé. The first town, Edéa, is 56 miles south-east, and in this stretch is a motor ferry over the Dibamba. From Edéa to Kribi the Nyong and Lokoundye rivers are crossed by ferries, whilst there are no less than 70 bridges in the 77 miles. From Kribi, turning north-eastwards, the road reaches Lolodorf after 72 miles, turning and twisting through broken country. Thirty-eight bridges cross the minor streams, but there is no ferry. From Lolodorf to Ebolova is 95 miles, in which there are 38 bridges but no ferry, and the surface is fair. Thirty-one more miles (331 in all) take one to Yaoundé over a good road with 6 bridges and no ferry.

The third road of entry, from Pointe Noire, is important only as offering an alternative to the Congo-Ocean railway, and as the south end of that, now nearly complete, lateral road linking up the ports of Gabon, Spanish Guinea, and the Cameroons. The main road to Brazzaville is rough in places and seasonal (dry weather only) as far as Dolisie. The remainder is surfaced with earth and laterite but is subject to occasional washouts. It runs through broken and afforested country with many bridges and steep gradients. The lateral road turns left (northwards) at Dolisie and runs through Sindara and Lambarene to Port Gentil and Libreville. A small stretch of barge and boat journey on the Ogowé takes one to Ndjole, and from there the road continues through La Lara, Mitsig, Oyem, and Bitam to Ebolova. It is all weather for most of its course, but is rough and patchy. It crosses the Niari and the Nyanga by ferries. Low-lying portions near the coast are, presumably, dry weather only. From La Lara to Ebolova the surface is good.

When considering the system in the interior, the roads from Pointe Noire and Brazzaville may be neglected. Their purpose is but local, and water transport intervenes before the better roads are reached. The main feature of the system is the triangle Yaoundé-Fort Lamy-Bangui. Not the whole of this triangle is all weather, but two of its sides, converging on Bangui, are the best roads of the territory, whilst the third side, Yaoundé-Fort Lamy, is nearly all good. From the

apices of this triangle, and from Fort Archambault on the Fort Lamy-Bangui side, roads radiate north and east, where inland water transport fails, and inside the triangle is a network of secondary, but sometimes important, roads.

The Triangle

(a) Fort Lamy-Bangui. 784 miles (4 days)

The most important apex is Fort Lamy, and the best road from it is that to Bangui. It starts in an area flooded from May to December, and is poor, though rapidly improving, from Fort Lamy to Fort Archambault (350 miles). It is not yet all weather, but may be so before the end of 1942. Meanwhile river transport on the Shari is an alternative in the wet season. The road crosses the Shari by ferry and then follows the western bank of that river. Lalumia is 60 miles from Lamy and has a rest-house. At the 168th mile is a dangerous bridge, but there is also a ferry. Passing close to Miltou (252 miles), the Bahr Sara (367 miles) is crossed by ferry and Fort Archambault is 13 miles farther on. The first 26 miles south of Fort Archambault is heavy, for laterite is not to be had and a deep layer of sand and gravel, continually being levelled, cuts up quickly and makes bad going. This stretch is closed in heavy rain and for 6 hours afterwards. From thence onwards the road is good and hard. Maro is 66 miles from Fort Archambault and at Kabo, 49 miles farther on, the Fort Crampel road branches off to the left. Batangafo 159, Bouka 219, Marali 256, Bogangolo 294, and Damara 356 are towns on the road. Bangui is 404 miles. Bridges vary, but all will carry 15 tons live load and give at least 8-feet clearance. No ferries have to be used; there are two serious gradients, and there are many rest-houses.

(b) Fort Lamy-Yaoundé

- (1) via Mogroum, Bongor, Léré, and Garoua (1,300 miles).
- (2) via Dikoa and Garoua (1,300 miles).
- (3) via Bongor, Bozoum, and Bertoua.

All of these roads are liable to flooding, the two first up to within 70 miles of Garoua, the third as far as Goré. The first two are shorter, but debouch into the hilly Garoua-Yaoundé stretch. Convoys would, normally, take the third and longer route, or the still longer detour by Archambault.

(c) *Yaoundé-Bangui*. 404 miles (2 days)

This road, one of the best in the territory, is more travelled than any other except that from Fort Archambault to Bangui. For the first 38 miles the road makes north to Yaoundé fork, where the Fort Lamy road branches off and the Bangui road turns eastwards. There are many bridges, almost all single-span reinforced concrete, on this length, and villages, or strip development, are nearly continuous. From the fork the road continues up the Sanaga valley, south of the river, to Nanga Eboko (65 miles), crossing many streams and passing continuous villages. The road is now over 1,500 feet above M.S.L. Twelve miles farther on is a descent of 1 mile with bad bends, and indeed there are dangerous points every 10 miles or so on the stretch to Bertoua (174 miles from Yaoundé), Batouri (232 miles), and Berberati (360 miles). The many bridges from Nanga Eboko onwards are generally wooden. At Bertoua the road turns left and, 4 miles farther on, the side road to Doumé branches off right and south. The last 20 miles before reaching Batouri are a continuous up and down between small streams. At Gamboma (354 miles) the road turns sharp left for Berberati. From Berberati onwards there is a choice of roads. The quickest way, by Bania and Bambio, is still a seasonal track and not recommended. It is best to turn sharp left and north for Carnot (427 miles from Yaoundé), Boda (613 miles), and Mbaiki (631 miles). After passing Boda most bridges are of reinforced concrete. Seven miles from Bangui is a steel pontoon ferry across the Mbali. The road is good, well soled, and surfaced with laterite. Recent reports suggest that traffic conditions are better on a detour leaving the above route at Bertoua and striking north to Betare, east to Baboua and Bouar, and then south to Carnot. This is, obviously, a good alternative.

Links within the Triangle

The several links between Fort Lamy and Yaoundé across the Shari and Logone have been mentioned. They are best studied on the communications map, and their use must be dictated by the floods of the time and by local information. Farther south an important link is that from Yaoundé to Fort Archambault.

It follows the same route as the Yaoundé-Fort Lamy road as far as Bertoua. There it turns north for Betare, Baboua, and Bouar, north-east to Batouri, and so to Bossangoa and Bouca, where it joins the Bangui-Archambault road and continues north.

North and East from the Triangle (distances from Lamy)

Northwards from Fort Lamy, and also from the western edge of Lake Chad, lead those ancient trade and caravan ways which reach the Mediterranean over dry, sandy, or rocky desert. Water supply shapes their direction, and modern events have led to their exploration and realinement for motor traffic. This last point is the more important since petrol stores are not yet installed and a lorry may have to use more than half its load in supplies and provisions for the return journey. From Fort Lamy to Moussoro the track is fair and reported all weather. From Moussoro northwards the track is all weather and leads to Largeau (Faya, 600 miles), dividing there into three. The most westerly skirts the south-west of the Tibetsi massif passing through Zouar and making north through Bilma. The centre makes for the Terengi pass and so north, whilst the eastern by-passes the Tibesti massif and is the most direct for Egypt (*see* Figs. 28, 29, pp. 52, 55). Good tracks unite Largeau, Ounianga, and Abéché.

Of the number of tracks which lead east from Lamy to Abéché (500 miles) and on to El Fasher and Khartoum via El Obeid (the railhead) the northern are heavy and sandy but dry, the southern harder but liable to flood. All, according to season, are well beaten by pilgrims. The best general route is that which passes through Bokoro, Ati, and Oum Hadjer. It has, however, many patches of black cotton soil, hard in dry weather, abominable in wet. During floods it may be safer to take the sandy Moussoro road. This route is joined by one from Fort Archambault via Melfi and Mongo. Those roads and tracks which lead north-east from the Lamy-Bangui road are, however, all poor and unmade. The best guide is that of relief. Not only the valleys, but the rivers that drain the massifs should be avoided. The higher the road the better the surface and the more all weather it will be.

More important are the roads which strike south-east from the Lamy-Bangui road, or direct east from Bangui, for these link to the Nile and the Indian Ocean. The first of these leaves the Lamy-Bangui road at Kabo, and branches left for Fort Crampel (64 miles), becoming second class. South of Fort Crampel there are alternative routes to Bambari (289 miles from Kabo).

The shorter, but worse, bears left at a fork 7 miles south of Fort Crampel and passes through Morouba. The longer, and better, passes through Dekoua, Fort Sibut, Griko, and Grimari. The eastern road from Bangui joins this latter road at Fort Sibut,

after turning right and east from the Bangui-Archambault road at Damara, 48 miles north of Bangui. These roads are second class, but all weather.

From Bambari to Bangassou, the frontier town on the north bank of the M'Bomou, is 224 miles of poor and twisting road. There are three ferries and several bridges to cross. The surface is, however, all weather, if often rough. It is not proposed to follow routes through the Belgian Congo in detail. Generally speaking more work has been expended on them, and there are fewer perils of flood, than in French Equatorial Africa. The difference is, however, one of degree rather than of kind, and patches of sand or cotton soil, indifferent ferries, and difficult 'drifts' are to be found on them all.

It is possible to-day (1942) to continue to the Anglo-Egyptian Sudan frontier by a road wholly within French territory. This road continues from Bangassou via Rafai and Zemio, is well surfaced, and though new as a secondary road is reported good and all weather.

West from the Triangle

A good secondary road branches north-west, from the Yaoundé-Maidugari road, just north of the river Sanaga. It serves Tchang, Nkongsamba, and the plantations areas thereabouts. Its purposes are local, however, and it has not been shown on the communications map, although it is shown on the general one.

The communications map is, probably, vastly more useful than mere description. On the roads shown as first class 100 lorries could pass in the day; on the secondaries a maximum of 50 and on the tracks very few indeed. But these figures imply that the road in question is being given special and continuous attention.

RAILWAYS

Historical

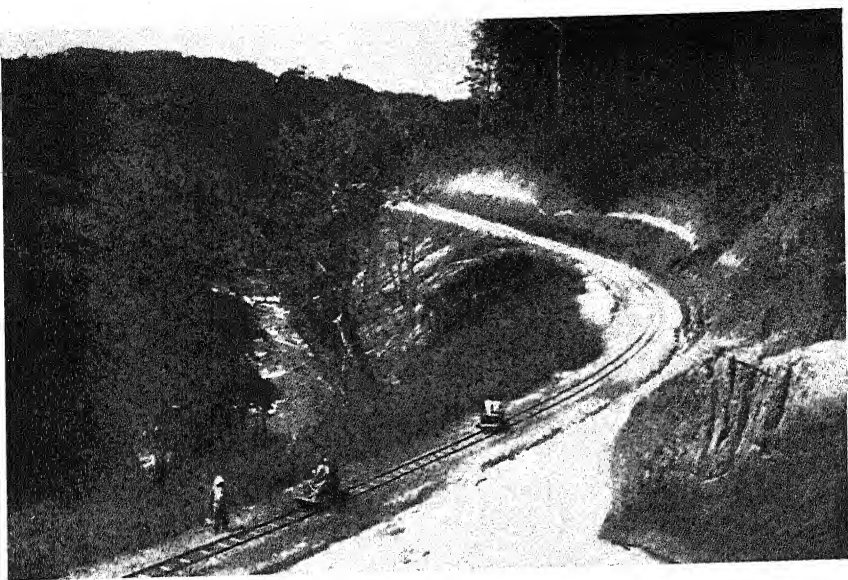
1. *The Congo-Ocean Railway.* In previous chapters it has been pointed out how that enormous basin, once a vast lake, which is drained by the Congo, finds an outlet over unnavigable rapids west of Stanley Pool to the sea. The Congo itself, and its huge tributaries from the north and from the south, are the natural carriers of travel and of trade throughout the basin and concentrate at Stanley Pool. Between them they serve very large areas of French and Belgian territory. De Brazza just forestalled Stanley in founding a settlement on Stanley Pool itself, but King Leopold easily forestalled a

none-too-interested France in building a railway to carry trade from Stanley Pool to the sea. For many years French Equatorial Africa was obliged to use that Belgian railway for the traffic of half its territory. Sooner or later a French railway inland from the coast of Gabon was bound to come, but it was hastened by the discovery of minerals in Haute Niari. Pointe Noire was the obvious site for a harbour on the Atlantic, and the difficult route between Brazzaville and Pointe Noire was surveyed in 1911. It remained to borrow the 21 million francs for construction, and in 1914 all was ready for the start, when war broke out. After the war preparations were begun again. A fresh survey was finished in 1921, construction was begun in that year by the Société des Batignolles, and the work was finished in 1934. Construction, and the congregation of enough labourers to effect it, were none too easy.

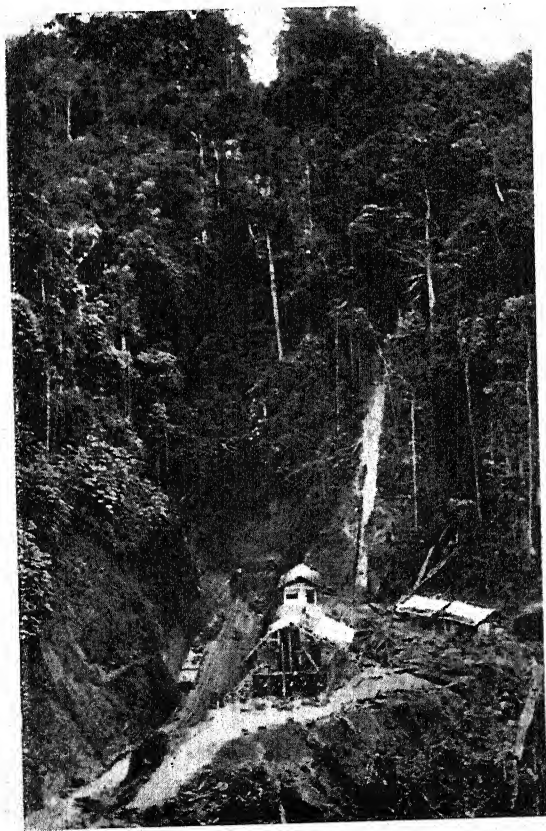
The Belgians were, naturally, interested spectators, for the Belgian Government has large holdings in the 'concession companies' whose methods, though much criticized, have undoubtedly accelerated African progress. Many of these companies would be financially affected by the opening of a rival route. There was, therefore, a prolonged exchange of views lasting from 1921 to 1925 between the respective governments, but the French naturally wanted their own rail outlet to the sea and continued work from 1921 onwards without intermission. Pointe Noire is at once more accessible and more easily developed as a port than Matadi, the Belgian terminus, and the Congo-Ocean railway, as it is now called, is destined some day to turn north from Brazzaville to Bangui and to continue northwards until it taps the Chad area or meets that long-dreamt-of French trans-continental railway from the Mediterranean coast. Meanwhile, however, there is considerable competition between the French and Belgian systems, whilst rebates and concessions are freely used to tempt traffic to one or other. Yet, in the future, there will be more passenger and goods traffic from the Congo basin than these two railways can, at present, take.

2. *The Cameroons.* In the French mandated area there were two German-built lines, the Central Railway which now runs from Douala to Yaoundé (with a branch to Mbalmayo), and the Northern Railway from Bonaberi to Nkongsamba.

In 1906 the Kamerun Eisenbahn Gesellschaft was authorized by the German Government to build the Northern Railway. By 1911 the line was completed as far as Nkongsamba, but the mountainous country south of Tchang made further extension towards Lake Chad



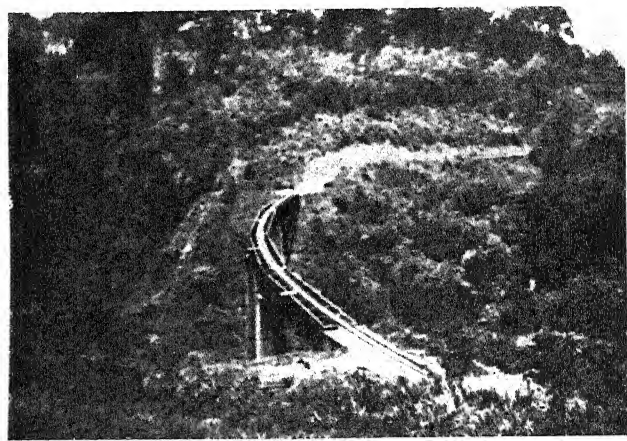
56. *The Congo Ocean Railway: 32 km. from Pointe Noire*



57. *The Congo Ocean Railway. Entrance to the Bamba Tunnel (139 km.)*



58. *Country towards Lolodorf in the Cameroons*



59. *A Bridge on the Cameroons Railway*

too costly to contemplate. In 1913 this scheme of expansion was finally abandoned.

A private company began the Central Railway in 1910 and by 1914 it was completed from Douala to Eséka, just short of the mountainous country farther east. The German Government had in mind a railway which would bifurcate, one branch through Mbalmayo to Ouessou on the Sanga (a tributary of the Congo) and possibly thence through the Congo to Tanganyika, the other through Yaoundé towards the Chad area. The war of 1914-18 put a stop to these ambitious plans, and the railway had not passed Eséka when it fell into French hands. In 1927 it was completed to Yaoundé, the natural terminus, in spite of considerable difficulties through the mountains east of Eséka. To the west many miles of line were also remade by the French, and in 1927 a branch was built from Ottélé to Mbalmayo. The object of this branch was to serve the basin of the river Nyong with its rubber and agricultural products. The construction of both lines was done by native personnel and proved costly owing to labour difficulties in the unhealthy coastal zone, many stream crossings, dense forests inland, and mountainous country on the last half of each route. The railways, however, have amply repaid the outlay, both financially and in the development of the country.

Plans have been made to extend this railway through the difficult country beyond Yaoundé and through the populous district of Garoua to Lake Chad itself, and nothing but the difficulty of finding the money prevents its successful execution. Both the Congo-Ocean and the Cameroon Railways are short in proportion to the vast countries that they serve. Nevertheless they have already played a big part in the modest development of this part of Africa. In the future their role may well be of the first importance.

GENERAL DESCRIPTION

(a) *Congo-Ocean Railway*

General (see Table 1 for itinerary)

The French completed the Congo-Ocean Railway in 1934. The railway connects Brazzaville with the port of Pointe Noire across 511 km. (318 miles) of a country both mountainous and with many rivers. The mines south of Niari near Renéville are connected with the Congo-Ocean line by 60-cm. gauge railways. From sea-level the line rises rapidly, to pass over the Mayombé plateau at 425 metres (1,395 ft.), then descends into the Niari plain 180 km. (112 miles)

COMMUNICATIONS

CONGO-OCEAN RAILWAY

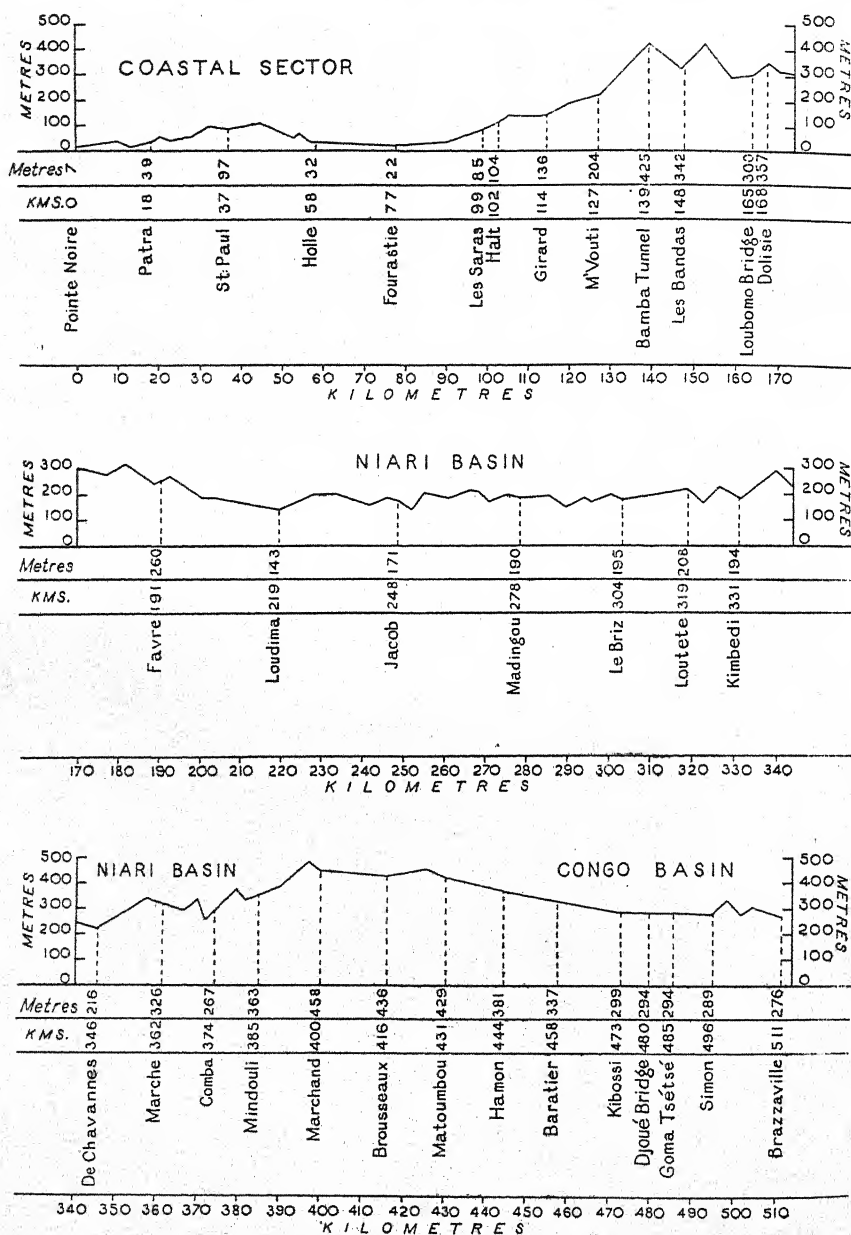


FIG. 101. Sections along the Congo-Ocean Railway

long, to climb once more over the Mindouli at 475 metres (1,558 ft.), before descending gently into Brazzaville, 310 metres (1,017 ft.) above sea-level.

The railway is mainly staffed by native personnel, only about 60 out of a total of 3,060 being European. The head offices are at Pointe Noire. Telegraphic communication between Pointe Noire and Brazzaville follows the line.

Length, Gauges, and Fuel

Route length. 511 km. (318 miles), single way except between Pointe Noire and the railway workshops where the line is doubled for 5 km., and at all the stations.

Track gauge. 3 ft. 6 in. (1.067 m.). This is the same gauge as the Léopoldville-Matadi Railway (and incidentally as most of the railways in South Africa).

Fuel. This is, however, a limiting factor. Steam locomotives (except small types) burn wood and coal alternatively. If maximum utilization is ever necessary, the immediate difficulties are the lack of trained wood-cutting gangs and lack of necessary equipment. Sufficient oil is available. If the railway is to be fully utilized, higher coal stocks are essential.

Permanent Way and Works

Type and weight of rail. Flat bottom, with a weight of 27 kilograms per metre (54 lb. per yard). Metal sleepers are used.

Axle load. The heaviest locomotive, in the Pointe Noire-Dolisie section, is of 2-8-0 type with the limiting weight of 15 tons per axle.

Gradients and curvature:

Maximum gradient coastwards, 15 per thousand.

„ „ inwards, 20 per thousand.

Minimum radius of curvature, 100 metres.

The curves are raised outside with a view to neutralizing the centrifugal force for a speed of about 40 km.p.h. (25 miles per hour). Not less than 80 m. of straight line is allowed between reverse and curves.

Structures. These include approximately 80 principal bridges and viaducts up to 92 m. (302 ft.) long, 82 smaller bridges from 3 to 10 m. (10 to 33 ft.), 618 culverts, and 12 tunnels, including one of 1,690 m. (5,544 ft.) at Mount Bamba. The latter took four years to complete

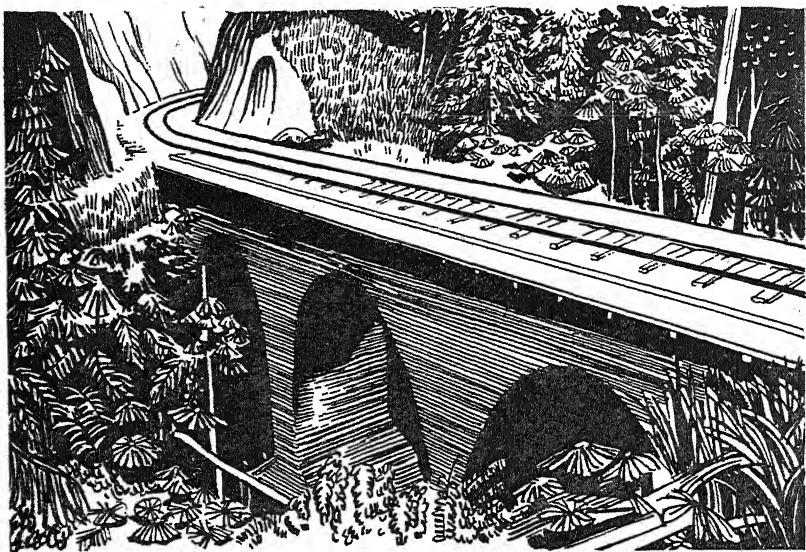


FIG. 102. *Railway crossing the Mayombé plateau*



FIG. 103. *Bridge over R. Loubomo, 165 km. from Pointe Noire*

and is the longest in Africa. These tunnels are all on the Mayombé plateau.

Although landslides occur from time to time, they are dealt with expeditiously by expert gangs of natives under European direction. One 50-ton, two 10-ton, and three small $1\frac{1}{2}$ -ton travelling cranes are available.

Locomotives. Numbers and types in 1941:

<i>Steam.</i> Golwé articulated, 2-6-0+0-6-2, weighing 85 tons, non-superheated	4
Super Golwé articulated, 2-6-0+0-6-4, weighing 85 tons, superheated	5
Mikado, 2-8-2, weighing 76.5 tons, superheated	6
Koppel shunting, no details	9
Baldwin shunting, no details.	11
	<hr/> 35

All steam-engines have a steam brake, combined with vacuum brake, ejector type super-Denton. The maximum weight per axle is 15 tons for the super Golwé and Mikado, 13 for the Golwé. The Super Golwé draws a load of 600 tons and the Mikado and Golwé 450 tons except along the mountainous section M'Vouti-Dolisie where the loads are restricted to 225 tons and 180 tons respectively.

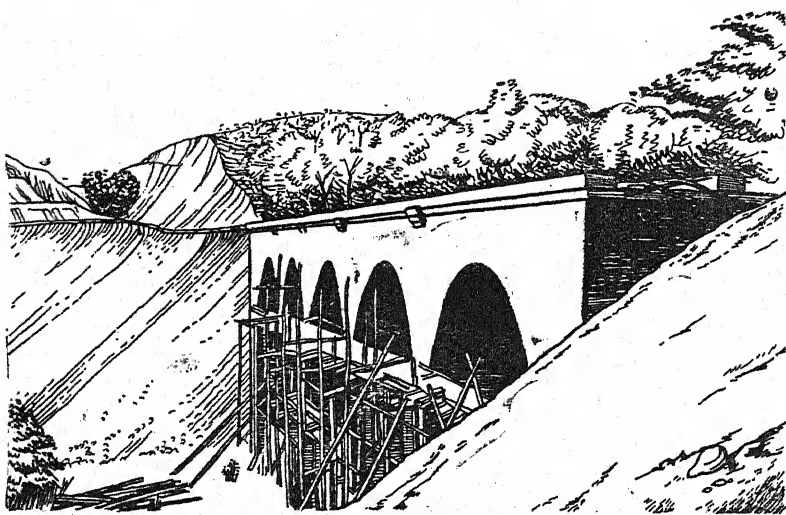
Diesel electric. C^{ie} Générale de Construction Mécanique:

Diesel-electric, 950 h.p. C-C type, which will draw trains of 250 tons	2
Billard railcars, diesel-electric, 125 h.p.	2
Michelin railcars, petrol, on pneumatic tyres	2
Total	<hr/> 41

On the inland trip to Brazzaville locomotives have to be doubled on the steep gradients between St. Paul (37 km.) and Holle (58 km.). These gradients are not shown on the section as they are very short and the scale is too small.

Depots and Repair Shops

Major locomotive repair shops are at Pointe Noire and Brazzaville, and there is another at M'Pila for rolling stock and general repairs. An auxiliary depot is at Dolisie.



[FIG. 104. Viaduct of R. Sema, about 10 km. east of Mindouli

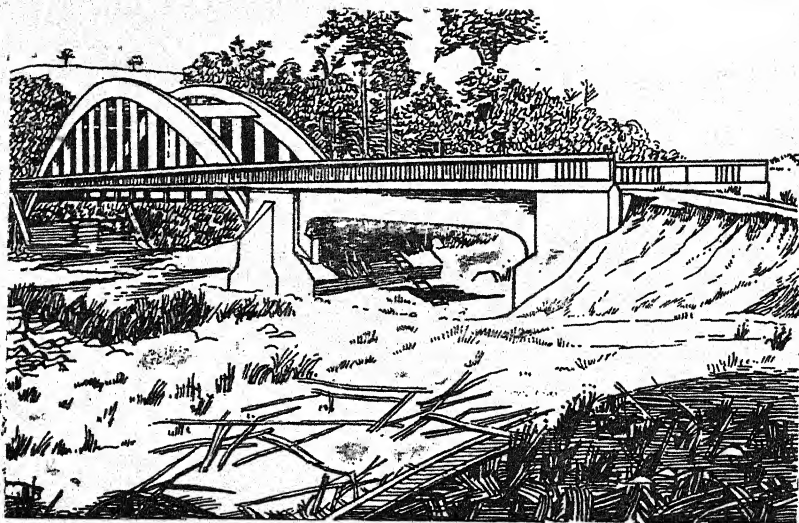


FIG. 105. Bridge over R. Djoué, 480 km. from Pointe Noire

Carriages and Wagons

- 5 first-class metal carriages, 18 sleeping berths or 26 seats in each.
- 3 second-class metal carriages, 24 sleeping berths or 36 seats in each.
- 4 third-class metal carriages (for natives), 80 seats in each.
- 2 restaurant metal carriages.
- 1 metal saloon carriage.
- 2 first-and-second class wooden carriages.
- 2 second-and-third class wooden carriages.

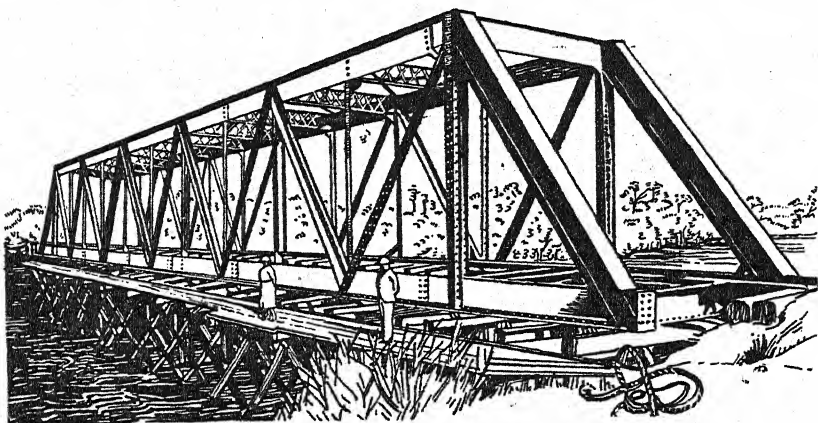


FIG. 106. *Another bridge over R. Djoué near Brazzaville*

- 7 third-class wooden carriages.
- 9 third-class wooden vans.
- 3 wooden express vans.
- 3 metal refrigerator vans.
- 109 covered vans, half of 20 and half of 30 tons capacity.
- 61 ordinary railway trucks, half of 20 and half of 30 tons capacity.
- 64 platform trucks, half of 20 and half of 30 tons capacity.
- 4 cattle trucks.
- 25 tipping wagons, capacity 30 tons each.
- 1 ambulance wagon.
- 40 wagons, each of 10 cu. m. (13 cubic yards) (ballast).

For general traffic there are 204 wagons, of which 105 are covered, 55 are ordinary railway trucks, and 44 are platform trucks, but there are others designed for special purposes. The rolling stock is mounted on bogies with 'Isothermos' axle boxes or roller bearings. They are

fitted with continuous action vacuum brakes and Willison automatic couplings.

Three trains a day each way carrying 510 tons of bulk goods or military stores would absorb most of the locomotives and all the wagons. This allows for about one engine in every five and a number of goods wagons to be normally under repair.

Traffic and Speed

Traffic. The average monthly traffic for the first eight months of 1941 was as follows:

Passengers, 1st and 2nd class	750
Passengers, native	10,000
Products for export	2,064 tons
Imported goods	1,845 "
Local traffic	3,050 "
Stone for the construction of the port	7,141 "
Wood fuel, &c.	2,441 "

Approximately 100 tons of goods are carried each way between Brazzaville and Pointe Noire.

Speed. Speeds are the averages for the run, and times are those for the trip from Pointe Noire to Brazzaville, the returns being slightly quicker.

	<i>Speed</i>	<i>Time</i>
Electric railway cars on rubber tyres	57 km.p.h. (35 m.p.h.)	9 hours
Electric passenger cars	44 " (27 ")	11½ "
Steam passenger cars	38 " (24 ")	13 "

(b) The Cameroons

General (see Table 2 for itinerary)

The railways were started by the Germans before 1914. Since 1918 they have been completed and administered by the French. They consist of two separate main lines running inland from opposite sides of the mouth of the Vouri river and one branch line, and are as follows:

- (a) *The central line* from Douala first runs south-eastwards and then bends north to Yaoundé. The first 160 km. (99 miles) were built by the Germans and partly rebuilt by the French, who extended the line to the present terminus.
- (b) A branch from Ottélé on the above line runs eastwards to Mbal-mayo at the head of navigation on the Nyong river.
- (c) *The northern line* was built by the Germans from Bonaberi (opposite Douala) northwards to Nkongsamba.

RAILWAYS

477

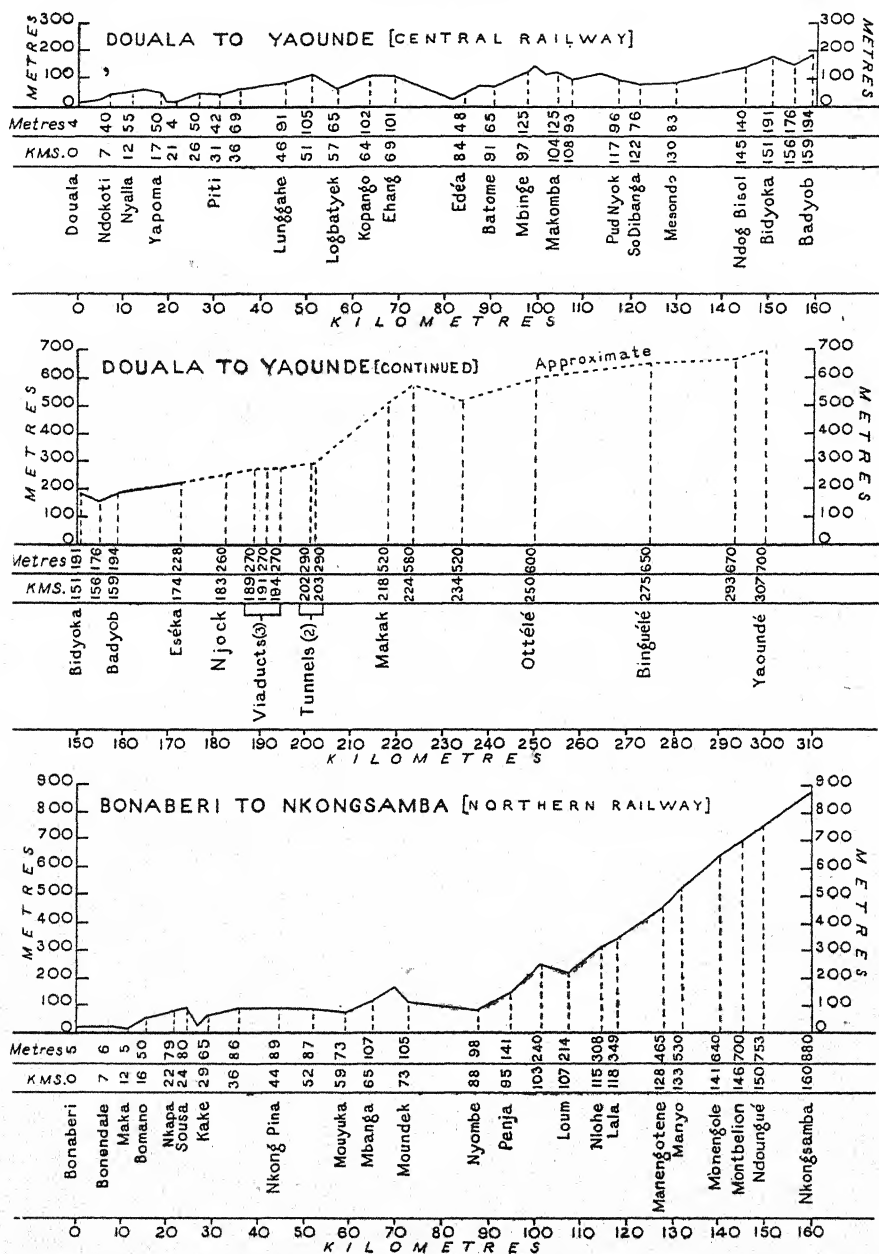


FIG. 107. Sections from Douala to Yaoundé (Central Railway), and from Bonaberi to Nkongsamba (Northern Railway)

Steel sleepers are used except on bridges, where they are wooden.

In 1926 the French employed only about 60 Europeans and over 2,000 natives on the railway. No later details are available, but it is unlikely that Europeans have replaced natives since that date.



FIG. 108. *Railway bridge over the Sanaga River*

Length, Gauges, and Fuel

Route lengths are: Central line . . .	307 km. (191 miles)
Mbalmayo . . .	37 „ (23 „)
Northern line . . .	160 „ (99 „)
	<hr/>
	504 km. (313 miles)

All are metre-gauge, single line, with double line for shunting at the intermediate stations.

Fuel. Both lines normally burn wood, coal being used in an emergency and for heavy gradients. Firewood is unlimited and gangs are sufficient even for increased traffic.

Permanent Way

Type and weight of rail. Flat bottom 27 kilograms per metre (54 lb. per yard) on northern line. The same on central line as far as Bidyoka, and 26 kilograms per metre (52 lb. per yard) beyond Bidyoka and on the Mbalmayo branch.

Gradients and curvature

<i>Central line</i>	<i>Max. gradient</i>	<i>Min. radius</i>
Douala-Bidyoka	1 in 60	150 m.
Bidyoka-Douala	1 in 100	
Bidyoka-Yaoundé	1 in 60	
Mbalmayo branch (both ways) . .	1 in 60	150 m.
<i>Northern line</i>		
Bonaberi-Nkongsamba (both ways)	1 in 60	120 m.

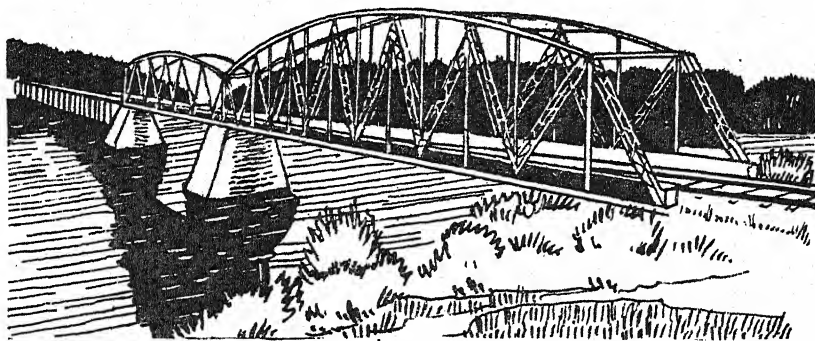


FIG. 109. Bridge over R. Dibamba (Central Railway) near Douala

Locomotives

(a) On the central line and branch

<i>Wheel arrangement</i>	<i>Type</i>	<i>Makers</i>	<i>Weight in tons</i>		<i>No. in service</i>
			<i>Unloaded</i>	<i>Loaded</i>	
0-8-0	Tank	Borsig	39	74	13
0-8-0	"	Orenstein & Koppel			
2-8-2	"	Mikado	44	..	4
0-8-0	"	Krauss	29	35	2
2-8-2	Tender	Corpet-Louvet	33	43	4
..	Shunting	..	..	..	4
					<u>31</u>

(b) On the northern line

2-8-0	Tank	Orenstein & Koppel	27	31	6
2-8-2	"	Corpet-Louvet	33	43	12
0-6-0	Tender	"	19	24	1
0-6-0	"	"	17	22	1
..	Shunting	..	..	..	2
					<u>22</u>

Platforms, Storehouses, and Workshops

Loading ramps for vehicles, on central railway, at Douala, 3; Nyalla, 1; Edéa, 1; Eséka, 1; Ottélé, 1; Mbalmayo, 1; Yaoundé, 1. On northern railway, loading ramps at Bonaberi, 1; Mbanga, 1; Nkongsamba, 1.

There is a central workshop at Douala with welding and all usual workshop equipment. The foundry can handle pieces up to 800 kilograms (1,764 lb., or $\frac{3}{4}$ ton). Bonaberi and Yaoundé also have complete workshops, but no foundry, lathe, or welding equipment.

Breakdown trains are at Douala, Yaoundé, and Bonaberi; 7 wagons including one 10-ton travelling crane and one electric light plant (115 volts/50 amps.)

Carriages, Wagons, and Speed

<i>Rolling stock</i>	<i>Central line</i>	<i>Northern line</i>
<i>Passenger carriages</i>		
1st-class saloon	1	1
1st "	4	3 (1st and 2nd)
2nd "	3 (1st and 2nd)	2 (2nd and 3rd)
3rd "	10	8
Restaurant cars	2	..
Ambulance wagons	1	1
<i>Goods wagons</i>		
Covered 7 tons	1	16
" 10 "	12	38
" 20 "	73	60
Open 5 "	..	2
" 7 "	..	19
" 10 "	28	..
" 20 "	12	8
Flats 7 "	..	1
" 10 "	11	7
" 15 "	56	..
" 20 "	13	20
Cattle wagons	..	7
Car wagons	8	2
Service trucks	95	54
Refrigerators	Nil	Nil
Thirty 20-ton wagons can be transformed to Ambulance wagons (20 casualties per wagon) at a moment's notice.		Ten wagons can be similarly converted.

All wagons are fitted with automatic Willison couplings and hand brakes.

In general two trains a day travel each way on both the central and the northern lines, probably more at busy seasons. The largest goods items are timber, palm kernels, palm oil, ground-nuts, food-stuffs, bananas, and cocoa.

Approximate speed of passenger trains:

<i>Central line, 307 km.</i>			<i>Time for trip</i>
Inward average speed approx.	35 km.p.h. (22 m.p.h.)		9 hours
Coastward average speed approx.	39 „ (24 „)		8 „
<i>Northern line, 160 km.</i>			
Inward average speed approx.	28 „ (17 „)		6 „
Coastward average speed approx.	30 „ (19 „)		5½ „

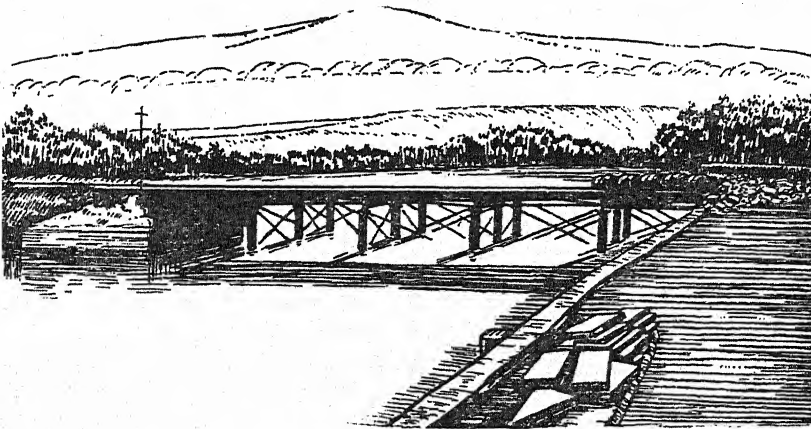


FIG. 110. Bridge over R. Maka (Northern Railway), 12 km. from Bonaberi

The speed of a train of flat cars carrying vehicles is about 25 km.p.h. (16 m.p.h.) plus 50 per cent. for station work and late running.

Capacity

On the central line, 600 tons of war material in 5 trains, each of 120 tons; or 1,000 troops plus equipment. On the northern line, 450 tons of war material in 6 trains, each of 75 tons; or 900 troops plus equipment.

Locomotives or goods wagons can be ferried from one line to the other if necessary.

A train of flat cars carrying transport vehicles will take up to 14 wagons (each 11 m. long), and the maximum utility load is 120 tons.

New Works

Preparatory studies of the following projects were authorized in 1930, but no construction has been undertaken:

Proposed main line from Yaoundé to the Mbéré river, then through Kaitia to the navigable Logone river.

Branches from Kaitia to Archambault and Maroua.

Proposed chord line from Douala towards Yoko, joining the main line.

AIRWAYS

BEFORE the outbreak of war several air lines served French Equatorial Africa and the Cameroons. Imperial Airways called at Lamy on the Kano-El Fasher line. The Belgian Sabéna Air Afrique had stations at Lamy and Brazzaville, *en route* for the Belgian Congo. The French Régie Air Afrique, from Algiers to Madagascar, also served Lamy, Archambault, and Brazzaville. The French Aero Maritime, ringing the West Coast and the Bight of Benin, had stations at Pointe Noire, Mayoumba, Port Gentil, and Libreville.

Moreover, a territory of such huge dimensions naturally uses air travel increasingly. Many local services were established. Since the outbreak of war this air travel has very greatly expanded, but it is neither possible nor desirable to go into details here. It must be remembered that airfields and landing-grounds in open desert country are, from the nature of things, easy to install and to change. No attempt has been made to add a precise description.

SIGNAL COMMUNICATIONS

WIRELESS, TELEGRAPH, AND TELEPHONE (Fig. III)

1. *Wireless*

Wireless reception conditions vary considerably and are seldom good for long-distance working during hours of daylight. Electric storms are frequent before and during the rainy season.

Table 3 gives the approximate location, long-, medium-, or short-wave lengths, strength of signals, owner, and general remarks on all stations. In French Equatorial Africa, apart from the Cameroons, these stations, commercial, naval, military, and air, come under the Société Radioélectrique de l'Afrique Equatoriale Française and the Service de Transmission which has its headquarters at Brazzaville. There is an internal link throughout the country, with Brazzaville as the main centre, while the commercial Station Inter-Coloniale controls external links. This commercial station works to London

and New York (both automatically) and to Beyrouth. For Red Cross and private cables it also works to Bamako (W. Africa), Lyons, the Vatican, and Madagascar. There is a training school at Bangui for providing the necessary personnel. Fig. 111 shows the positions of the main stations in the country with the network of their links.

There are also two broadcasting stations at Brazzaville, one for external (5 kW.) and one for internal (0.5 kW.).

In the Cameroons, however, the stations are all owned by the Postes, Télégraphes et Téléphones, apart from three coast stations at Douala. The meteorological reports from Batouri, Bertua, Douala, Garoua, Kribi, Maroua, Ngaoundéré, Tibati, and Yoko are collected at Yaoundé, and then transmitted from the Meteorological General Cameroon station. The main wireless transmission and reception of the Cameroons is, however, carried out from Douala, both to countries overseas and inland.

2. *Telegraph*

The system in French Equatorial Africa is very restricted. The lines are shown in Fig. 111. The line Brazzaville-Bangui-Archambault-Lamy is most unreliable and transmission is very poor. The railway telegraph line from Brazzaville to Pointe Noire is utilized by the Post Office as a telegraph line and communications can therefore be made with the various intermediate stations. The same system applies to the railway Douala-Yaoundé in the Cameroons. Transmission is done by native operators and is not too reliable.

3. *Telephone*

At Brazzaville, Pointe Noire, Libreville, and Douala there are internal telephone systems. Trunk lines exist from Brazzaville to Pointe Noire and from Douala to Yaoundé. Brazzaville is also in telephonic communication with Leopoldville.

On all the railways the telephone and telegraph systems are also used by the public.

4. *Submarine Cables*

The following are the submarine cables serving French Equatorial Africa:

Douala-Lomé (Togo: French Mandate).

Libreville-Lagos. The latter has been diverted during the present war from Cotonou (Dahomey).

Libreville-Cap Lopez; Cap Lopez-Pointe Noire.

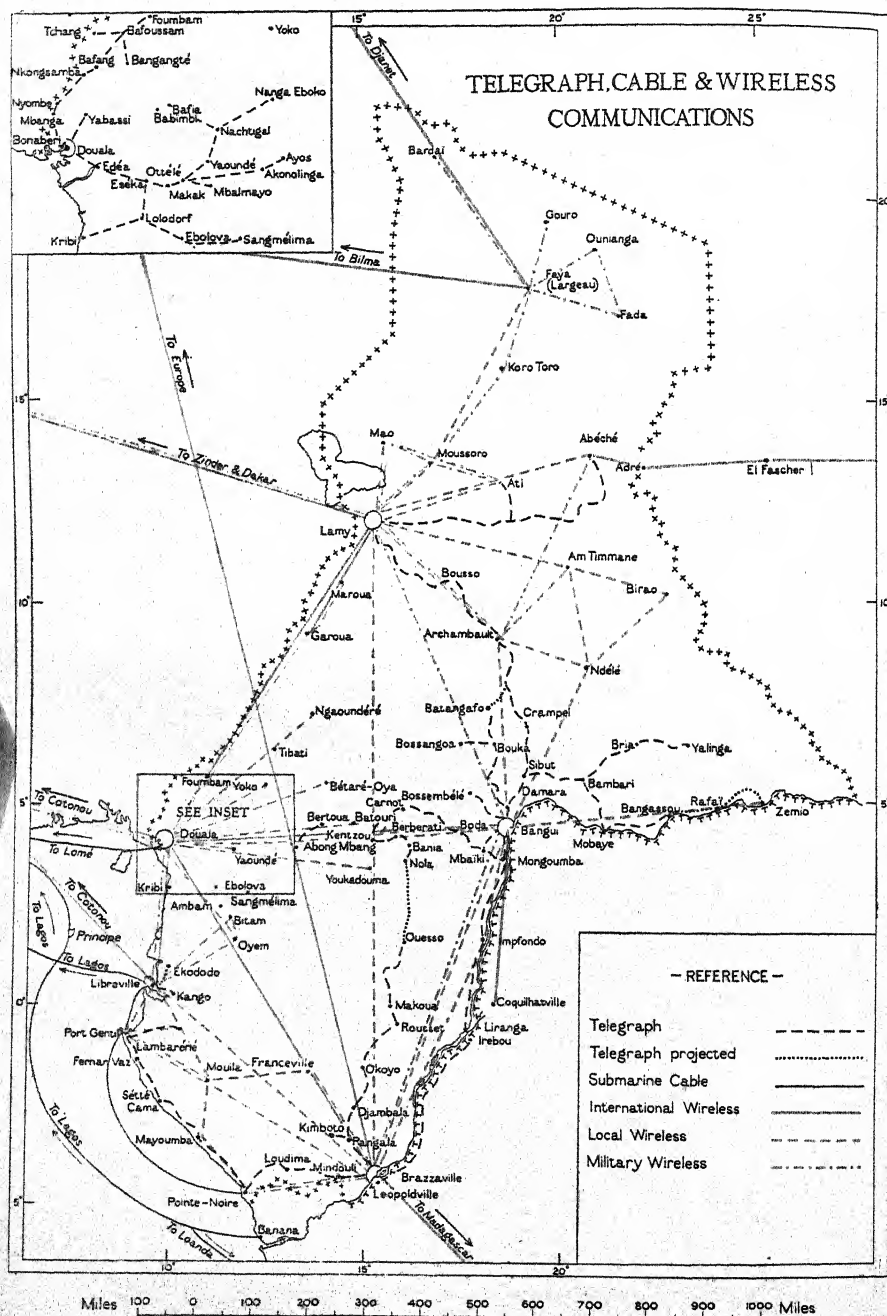


TABLE I
Railway Itinerary: Congo-Ocean
 (See Fig. 101)

Station or halt	Type	Distance (km.)	Shunting loops		Reversing tri- angles	Loading station				Halls (for troops) or Warehouses	
			No.	Lengths (metres)		Covered in		Open		No.	Area (sq. m.)
						No.	Area (sq. m.)	No.	Area (sq. m.)		
Pointe Noire Express	Central station	0	..	..	I (loco- motive depot)	..	..	..	..	..	..
Slow	..	..	12	2,800	..	..	..	..	1 hall	364	..
Maritime	..	..	..	..	I	720	..	..	4 ware- houses	6,840	..
Patra	Halt	18	2	630	..	..	..	..	..	..	..
St. Paul	"	37	2	569	..	..	..	..	..	..	..
Holle	"	58	3	803	..	..	..	..	..	..	..
Fourastie	"	77	2	691	I	..	..	..	..	..	..
Les Saras	"	99	2	460	..	..	..	..	..	..	..
Km. 102	"	102	I	309	I	..	..	..	..	..	..
Girard	"	114	I	384	..	..	..	..	..	..	..
M'Vouti	Station	127	..	..	I	..	..	..	1 hall	360	..
Les Bandas	Halt	148	I	310	..	..	..	..	..	..	..
Dolisie	Station	168	5	1,200	I	..	..	..	..	..	..
Favre	Halt	191	3	772	..	..	..	..	..	..	..
Loudima	"	219	3	600	..	..	..	..	..	..	..
Jacob	"	248	3	714	..	..	..	..	..	..	..
Madingou	"	278	4	914	I	..	..	..	..	..	..
Le Briz	"	304	3	590	..	..	..	..	..	..	..
Loutete	"	319	I	244	..	..	..	..	..	..	..
Kimbedi	"	331	I	343	..	..	..	..	..	..	..
De Chavannes	Station	346	3	825	I	..	..	..	1 hall	200	..
Marche	Halt	362	I	325	..	..	..	..	..	..	..
Comba	"	374	I	344	..	..	..	..	..	..	..
Mindouli	Station	385	4	736	..	..	..	I	130	2 halls	320
Marchand	Halt	400	I	345	..	..	..	..	..	..	..
Brousseaux	"	416	I	344	..	..	..	..	..	..	..
Matoumbou	"	431	3	650	..	I	113	..	..	..	..
Hamon	"	444	I	344	..	..	..	..	..	..	..
Baratier	"	458	2	689	..	..	..	..	..	..	..
Kibossi	"	473	I	344	..	..	..	..	..	..	..
Goma Tsétsé	"	485	I	344	..	..	..	..	..	..	..
Simon	"	496	I	344	..	..	..	..	1 hall	180	..
Brazzaville Express	Central station	511	5	700	..	..	..	..	1 hall	180	..
Slow	..	..	8	7,600	I	I	114	..	1 hall	1,800	..
River	..	..	2	250	(loco- motive depot)	..	..	..	1 hall	650	..

TABLE 2
Railway Itinerary: Cameroons
 (See Fig. 107)

Distance (km.)	Stations	Engineering works	Description
(1) Central line			
0	DOUALA	..	Between Douala and Edéa
7	NDOKOTI	..	the railway winds, and
12	NYALLA	..	rises and falls over hills.
17	YAPOMA	..	..
18	..	Multi-span steel truss bridge.	Over river Dibamba (Fig. 109).
31	PITI	..	..
46	LUNGAHE	..	..
57	LOGBATYEK	..	..
64	KOPANGO	..	..
69	EHANG	..	..
81	..	Metal bridge, 230 m. (multi-span).	Here the railway crosses river Sanaga.
83	..	Metal bridge, 160 m. (single-span).	(Fig. 108.)
84	EDÉA	..	..
91	BATOMBE	..	..
97	MBINGE	..	..
104	MAKOMBA	..	..
117	PUD NYOK	..	..
122	SO DIBANGA	..	..
130	MESONDO	..	..
145	NDOG BISOL	..	..
151	BIDYOKA	..	Section from Bidyoka to
159	BADYOB	Three tunnels in the mountains between Badyob and Eséka.	Eséka, completed by the Germans in 1913, was later rebuilt by the French as the beginning of their extension through diffi- cult mountain country to Yaoundé. (See Fig. 107.)
174	ESÉKA	..	..
183	NJOCK	..	..
189	..	Metal viaduct, 100 m. long, 18 m. high.	Pomlep.
190	..	150 m. very high, steel, curved trestle bridge.	..
191	..	Metal viaduct, 120 m. long, 21 m. high.	Baoui.
194	..	Metal viaduct, 130 m. long, 17 m. high.	Petite Maloumé.
		Banks up to 18 m. high; cuttings up to 25 m. deep.	
197	..	Metal bridge, 110 m.	Pobé.
202	..	Tunnel, 233 m.	..

<i>Distance (km.)</i>	<i>Stations</i>	<i>Engineering works</i>	<i>Description</i>
203	..	Tunnel, 103 m.	..
203½	..	Metal bridge, 50 m.	..
205	..	Metal bridge, 80 m.	Grande Maloumé.
218	MAKAK	Banks up to 15 m. high; cuttings up to 10 m. deep. (Earthworks totalled 1·66 million cu. m. with 30,000 cu. m. of rock blasting, in a length of 38 km.)	..
227	..	Metal bridge, 50 m.	..
250	OTTÉLÉ	Two bridges and four aqueducts over tribu- taries of river Nyong on this branch.	Branch 37 km. east to Mbalmayo at the head of navigation on the Nyong river. Main line bears north-east.
275	BINGUÉLÉ	..	..
276	..	Metal bridge, 30 m.	Akoma.
293	..	Metal bridge, 30 m.	Mopfu.
301	YAOUNDÉ	..	..

(2) Northern line

0	BONABERI	..	..
7	BONENDALE	..	The railway follows river
9	..	Metal bridge, 80 m.	Maka at first, then rises quickly.
12	MAKA	Metal bridge, 100 m.	(Fig. 110.)
16	BOMANO	..	..
22	NKAPA	..	..
24	SOUSA	..	..
29	KAKE	..	..
44	NKONG PINA	..	..
59	MOUYUKA	..	..
65	MBANGA	..	..
73	MOUNDEK	..	..
88	NYOMBE	..	..
95	PENJA	..	..
107	LOUM	..	The remainder of route is an almost continuous steep ascent through diffi- cult mountain country.
115	NLOHE	..	..
115	..	Metal bridge, 65 m.	..
118	LALA	..	..
128	MANENGOTENE	..	..
133	MANYO	..	..
141	MONENGOLE	..	..
146	MONTBELION	..	..
150	NDOUNGUÉ	..	..
160	NKONGSAMBA	..	..

TABLE 3
Wireless Stations

Name of station	Position	Wave: long, medium, or short	Power kW. (if known)	Owner	Remarks. (M.R. means that the station sends out Meteorological Reports. D.F. means Direction Finding)
ABÉCHÉ	20° 51' E. 13° 49' N.	Short Short	0.1	Société Radioélectrique de l'Afrique Equatoriale Française	Interior, Egypt. M.R.
ARCHAMBAULT	(Index)	Short	0.15		M.R.
ATI	18° 27' E. 13° 13' N.	Short Short			Interior. M.R.
BANGUI	18° 35' E.	Short	0.3		Interior, Cameroons, Congo.
	04° 21' N.	Short			M.R.
		Short			Interior, Cameroons.
BERBERATI	15° 47' E. 04° 16' N.	Short	0.3		Interior, Cameroons.
BIRAO	22° 48' E. 10° 16' N.	Short	0.03		Interior.
BITAM	11° 28' E. 02° 05' N.	Short	0.03		Interior, Cameroons.
BONGOR	15° 25' E. 10° 17' N.	Short	0.03		Interior, Cameroons.
BRAZZAVILLE	15° 18' E. 04° 15' S.	16 Short-wave stations	{ 0.5 0.2	Civil wireless Government stations. (Service de Transmission)	M.R. France, French colonies. H.Q. at Brazzaville.
	..	..	150		
	Broad-casting stations	Long	several of 5 0.5		Station Intercoloniale
FAYA (Largeau)	19° 10' E. 18° 00' N.	Long Short	0.5 0.2	Amateur station	Internal only. Interior, French West Africa.
	13° 33' E. 01° 38' S.	Short	0.03	S.R. de l'A.E.F.	M.R. Interior.
LAMÉARÉNE	10° 12' E. 00° 23' S.	Short	0.1		Interior.
LAMY	15° 02' E. 12° 07' N.	Med. Short	0.2	Société Trans-Africaine	Interior, Cameroons. F.W.A.
		Short		S.R. de l'A.E.F.		M.R.
		Short	0.5		Régie Air Afrique Algiers	D.F. Aeronautical Station. Conducts official air radio service, including Imperial Airways for the Government of F.E.A. as well as its private service.
		Med.			
LIBREVILLE	09° 27' E. 00° 23' N.	Short Short	0.5	S.R. de l'A.E.F.	M.R.
		Short	0.1 0.5		Coast station Coast station	Performs long-distance radio-communication service with ships of the C^{ie} des Chargeurs Réunis.

Name of station	Position	Wave: long, medium, or short	Power kW. (if known)	Owner	Remarks (M.R. means that the station sends out Meteorological Reports. D.F. means direction finding)
MAO	15° 19' E. 14° 08' N.	Short	0.03	S.R. de l'A.E.F.	Interior, Cameroons.
MAYOUMBA	10° 39' E.	Short	0.05		Interior, Cameroons.
MOUILA	03° 25' S. 11° 01' E.	Short	0.03		Interior, Cameroons.
NDÉLÉ	01° 52' S. 20° 38' E.	Short	0.03		Interior.
OYEM	08° 24' N. 11° 35' E.	Short	0.03		Interior, Cameroons.
POINTE NOIRE	01° 38' N. 11° 43' E. 04° 47' S.	Med. Med.	0.8 0.1		Interior, Congo, Angola F.W.A. Including M.R.s.
PORT GENTIL	08° 44' E. 00° 43' S.	Short	0.4	Coast station	Interior, Cameroons F.W.A.
		Short	0.3		
		Short	0.8		
		Med.	0.8		
ZEMIO	25° 10' E. 05° 00' N.	Short	0.25	S.R. de l'A.E.F.	M.R. Interior.
		Short	0.0075		
		Short	0.8		
		Short	0.03		
		Short	0.15		
		Short	0.005		
BATOURI	14° 24' E. 04° 25' N.	Short	0.01	Postes, télégraphes et téléphones	Interior.
BERTOUA	13° 42' E. 04° 34' N.	Short	0.01		Interior.
BETARÉ CYA (south of Betaré)	14° 08' E. 05° 35' N.	Short	0.25		Interior.
DOUALA	09° 41' E. 04° 04' N.	Short	0.1		Interior, and F.W.A.
GAROUA	13° 24' E. 09° 18' N.	(7 stations)	0.8 0.8 0.8 2 0.9	Coast stations	Aeronautical Station. Limited public service.
		Med.	0.8		
		Short	0.8		
		Short	0.9		
KENTZOU	15° 08' E. 04° 08' N.	Short	0.15	P.T.T.	F.E.A. Interior.
KRIBI	09° 54' E. 02° 56' N.	Short	0.002		
MANOKA	09° 38' E. 03° 52' N.	Short	0.015		
MAROUA	14° 19' E. 10° 25' N.	Short	0.002		
MOKOLO	13° 47' E. 10° 45' N.	Short	5		
NGAOUNDÉ	13° 19' E. 07° 17' N.	Short	0.015		
TIBATI	12° 34' E. 06° 28' N.	Short	0.01		
YAOUNDÉ	11° 32' E. 03° 52' N.	Short	0.005		
YOKO	12° 20' E. 05° 32' N.	Short	0.1 0.4 0.1		
YOUKADOUMA	15° 01' E. 03° 27' N.	Short	0.002		

MAPS AND AUTHORITIES

THE first maps of African colonies have generally been the result of boundary commissions, a number of latitudes, longitudes, and azimuths observed by explorers, and finally rough traverses measured by administrative officers. The maps of French Equatorial Africa and Cameroons have passed through this stage and improved upon it, for railway surveys, a few isolated triangulations, and a large number of astronomically fixed points have been added. A small *Service Géographique* was at work before 1914. Several French officials, Bruel, Lamotte, Cambier, and others, have made topographical surveys. The boundaries with Libya and the Anglo-Egyptian Sudan were well mapped. In the Cameroons the Germans had explored thoroughly and mapped here and there. These more or less reliable patches of survey are dotted about over a vast area, the rest of which is still in the exploratory stage. The only regular series of sheets covering the whole area are those of the international 1/1,000,000, and of that 1/2,000,000 of Africa in which Belgium, France, and Great Britain collaborate. An index to the sheets of these two series is given in Fig. 112. The topographical map in the end pocket is a reproduction of the 1/3,000,000 in the *Atlas des Colonies Françaises*. The most perplexing matter of cartography is the spelling of place-names. French transliteration of Arabic and Bantu names not only differs from our own but is not consistent, and every book and map of the country will be found to differ. Moreover, German names, in the Cameroons, gradually assume a French spelling.

A point in which the topographical map chosen for this book is at fault is in the boundary line with Libya. Final agreement with Italy (1935) did in fact come later than the publication of this map. The correct line will be found on the many small maps given as figures in the text.

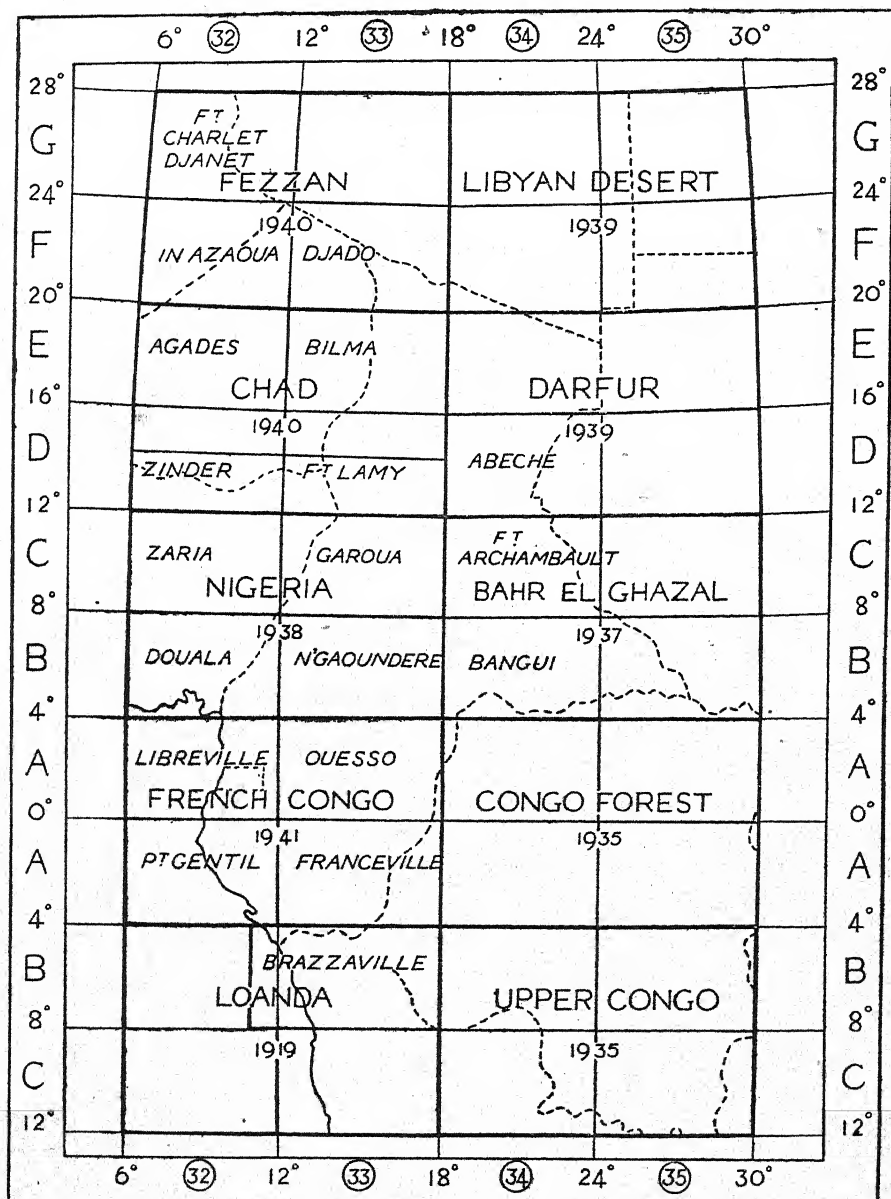
A second map in the end pocket is designed to show the main communications, by land and river, along which transport can go. It does not pretend to show the multitude of tracks which criss-cross the country, and although many of these tracks appear on the first, and main, map little reliance should be placed upon them.

A magnetic survey was carried out by the Carnegie Institute in 1919. As the isogonals depart fairly widely from the conventional lines usually given for Africa, at some very small scale, it may be of value to show them (see Fig. 113).

Official time, in French Equatorial Africa, is an hour ahead of Greenwich.

It is not the purpose, nor the practice, of these Handbooks to give voluminous bibliographies. For any and every chapter dozens of books have been consulted, periodicals examined, and reports studied: yet so much does war stimulate and hasten exploration and research, so radically does it affect administration and development, that many of these

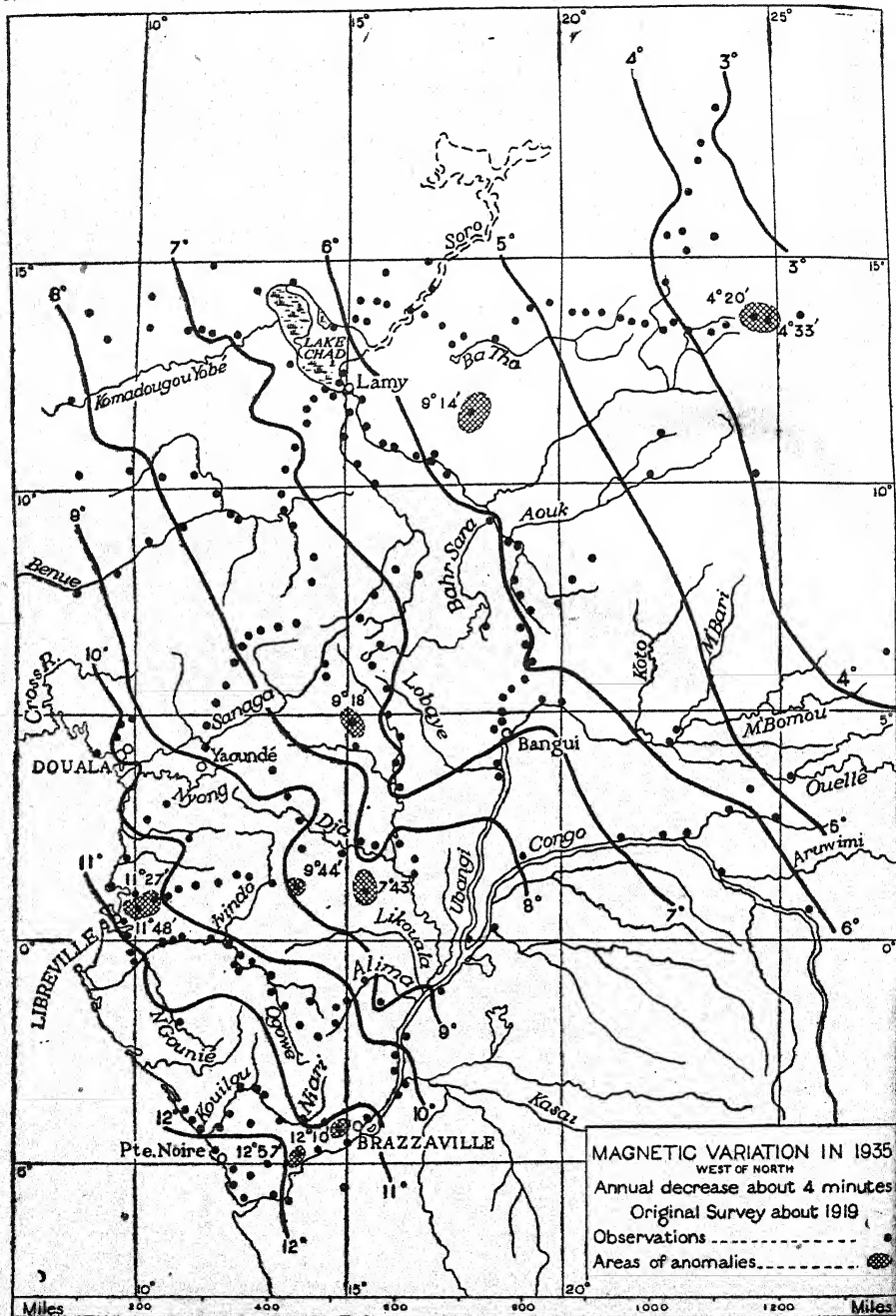
INDEX TO THE INTERNATIONAL 1:1M. AND 1:2M. SERIES



1:1,000,000.....LIBREVILLE

1:2,000,000.....FRENCH CONGO

FIG. 112. Index to the sheets of the 1:1,000,000 and 1:2,000,000 maps



authorities will have but historical value in the future. The books which have provided a background throughout are:

La France Equatoriale Africaine, Georges Bruel (1935).

An African Survey, Lord Hailey (1938).

Géographie Universelle, Tomes XI and XII (1937).

The African today and tomorrow, Westermann (1939).

Capital Investment in Africa, Frankel (1938).

Every possible help has been given by the Admiralty, the Air Ministry, and the War Office. The Geological Survey, the Meteorological Office, the Royal Botanical Gardens (Kew), the Royal Geographical Society, and the Royal Institute of International Affairs have given invaluable assistance. The Geographical Section General Staff has printed, or provided, for us whatever maps we have required.

To the preparation of this volume the following have contributed:

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and

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CONVERSION TABLES

METRIC AND BRITISH UNITS

All metallic standards are subject to molecular change. Tables differ according to the date of the comparison on which they rest. These are based on the 1896 comparison between Yard and Metre, which gives:

$$1 \text{ metre} = 39.370113 \text{ inches.}$$

Tables 1 to 6 give the ratios between units of the same sort.

Space, and printing, deny the use of many decimal figures. Therefore such a figure as 0.00000032 is given as 3.2×10^{-7} (which means that the first significant figure is the seventh after the decimal point: 0.0001925 becomes 1.925×10^{-4} , and 0.0000734 is 7.34×10^{-5}).

Tables 7 to 20 give ratios *in extenso* between single units.

These deal with conversions from metric into the equivalent British units.

Figures referring to metric units are given in italics; metric units (1 to 9) are given at the top of each table, reading horizontally from left to right; metric tens read vertically from top to bottom on extreme right and left of the table.

Thus in Table 8, if 87 centimetres are to be converted to inches, the 8 is read on the left or right edge, and, following the horizontal line until the 7 unit column is reached, the answer 34.252 is read.

LIST OF TABLES

1. Units of Length
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3. Units of Volume
4. Units of Weight
5. Units of Pressure
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8. Centimetres to Inches
9. Kilometres to Statute Miles
10. Square Metres to Square Feet
11. Hectares to Acres
12. Square Kilometres to Square Miles
13. Cubic Metres to Cubic Feet
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17. Quintals per Hectare to Tons per Acre
18. Numbers per Square Kilometre to Numbers per Square Mile
19. Degrees Centigrade to Degrees Fahrenheit
20. Millibars, Millimetres of Mercury, and Inches of Mercury

TABLE 1. UNITS OF LENGTH

Nautical mile	Statute mile	Kilometre	Metre	Yard	Foot	Inch	Centimetre
1	1.152	1.853	1853	2027	†6080	72,960	185,300
8.684×10^{-1}	1	1.60934	1609.34	1.760	5.280	63.360	160.934
5.396×10^{-1}	6.21372×10^{-1}	1	1000	1093.61	3.28084	39.3701	100.000
5.396×10^{-4}	6.21372×10^{-4}	1.0×10^{-3}	1	1.09361	3.28084	39.3701	100
4.934×10^{-4}	5.68182×10^{-4}	9.14399×10^{-4}	9.14399×10^{-1}	1	3	$.36$	91.4399
1.645×10^{-4}	1.89394×10^{-4}	3.048×10^{-4}	3.048×10^{-1}	3.33333×10^{-1}	1	12	$30.48(00)$
1.371×10^{-3}	1.57828×10^{-3}	2.54×10^{-3}	2.54×10^{-2}	2.77778×10^{-2}	8.33333×10^{-2}	1	$2.54(000)$
5.396×10^{-6}	6.21372×10^{-6}	1.0×10^{-5}	1.0×10^{-2}	1.09361×10^{-2}	3.28084×10^{-2}	3.93701×10^{-1}	1

† This is the customary British practice, and not the international nautical mile, of 1852 metres, which Great Britain has not adopted.

Rough rules: 1 millimetre = 0.04 inch.

1 metre = $\frac{1}{3}$ feet.

1 kilometre = $\frac{1}{2}$ of a mile.

TABLE 2. UNITS OF AREA

Square mile	Square kilometre	Hectare	Acre	Square metre	Square yard	Square foot
1	2.58998	258.998	640	$258,998 \times 10$	$30,976 \times 10^2$	$278,784 \times 10^2$
3.86103×10^{-1}	1	100	247.106	$1,000,000$	$119,599 \times 10$	$107,639 \times 10^2$
3.86103×10^{-3}	1.0×10^{-2}	1	2.47106	$10,000$	$11,959.9$	$107,639$
1.5625×10^{-3}	4.04685×10^{-3}	4.04685×10^{-1}	1	4046.85	4840	$43,560$
3.86103×10^{-7}	1.0×10^{-6}	1.0×10^{-4}	2.47106×10^{-4}	1	1.19599	10.7639
3.22831×10^{-7}	8.36126×10^{-7}	8.36126×10^{-5}	2.06612×10^{-4}	8.36126×10^{-1}	1	9
3.58701×10^{-8}	9.29029×10^{-8}	9.29029×10^{-6}	2.29568×10^{-5}	9.29029×10^{-2}	1.11111×10^{-1}	1

Rough rules: 1 square kilometre = $\frac{3}{8}$ square mile.

1 hectare = $2\frac{1}{2}$ acres.

TABLE 3. UNITS OF VOLUME

Kilolitre	Cubic metre	Cubic yard	Bushel	Cubic foot	Imp. gall.	Litre	Pint
I	I·000027	I·30799	27·4969	35·3157	219·976	1000	1759·80
9·99973 × 10 ⁻¹	I	I·30795	27·4962	35·3148	219·970	999·973	1759·75
7·64532 × 10 ⁻¹	7·64553 × 10 ⁻¹	I	21·0223	27	168·178	764·532	1345·43
3·63677 × 10 ⁻²	3·63687 × 10 ⁻²	4·75685 × 10 ⁻²	I	I·28435	8	30·3677	64
2·83160 × 10 ⁻²	2·83167 × 10 ⁻²	3·70370 × 10 ⁻²	7·78602 × 10 ⁻¹	I	6·22882	28·3160	49·8306
4·54596 × 10 ⁻³	4·54608 × 10 ⁻³	5·94607 × 10 ⁻³	I·25 × 10 ⁻¹	1·60544 × 10 ⁻¹	I	4·54596	8
I·0 × 10 ⁻³	I·000027 × 10 ⁻³	I·30799 × 10 ⁻³	2·74969 × 10 ⁻²	3·53157 × 10 ⁻²	2·19976 × 10 ⁻¹	I	I·75980
5·68245 × 10 ⁻⁴	5·68260 × 10 ⁻⁴	7·43258 × 10 ⁻⁴	I·5025 × 10 ⁻²	2·00680 × 10 ⁻²	I·25 × 10 ⁻¹	5·68245 × 10 ⁻¹	I

TABLE 4. UNITS OF WEIGHT

† Ton	Millier or metric ton	Quintal	Kilogramme	lb.
I	I·01605	10·1605	1016·05	2240
9·84207 × 10 ⁻¹	I	10	1000	2204·62
9·84207 × 10 ⁻²	I·0 × 10 ⁻¹	I	100	220·462
9·84207 × 10 ⁻⁴	I·0 × 10 ⁻³	I·0 × 10 ⁻²	I	2·20462
4·46429 × 10 ⁻⁴	4·53592 × 10 ⁻⁴	4·53592 × 10 ⁻³	4·53592 × 10 ⁻¹	I

† The ton of 2240 lb. is sometimes called the "Long Ton" to distinguish it from the "Short Ton" of 2000 lb.

Rough rule: To turn metric into British tons deduct 1½ per cent.

TABLE 5. UNITS OF PRESSURE

<i>Atmosphere normal</i> 760 mm. Hg at 0° C. ($g = 980.665$ cm. per sec. per sec.)	<i>Bar</i> ($= 10^6$ dynes per sq. cm.)	<i>lb. per sq. inch</i> ($g = 980.665$ cm. per sec. per sec.)	<i>Inches of mercury at 32° F.</i> ($g = 980.665$ cm. per sec. per sec.)	<i>Millibars (1,000 dynes per sq. cm.)</i>
<i>I</i>	1.01325	14.6959	29.9213	1013.25
9.86923×10^{-1}	<i>I</i>	14.5937	29.5300	1000
6.80461×10^{-2}	6.89477×10^{-2}	<i>I</i>	2.03603	68.9477
3.34210×10^{-2}	3.38639×10^{-2}	4.91153×10^{-1}	<i>I</i>	33.8639
9.86923×10^{-4}	1.0×10^{-3}	1.45937×10^{-2}	2.95300×10^{-2}	<i>I</i>

TABLE 6. YIELD PER AREA

<i>Ton per acre</i>	<i>Metric ton per hectare</i>	<i>Quintal per hectare</i>
<i>I</i>	2.51071	25.1071
3.98294×10^{-1}	<i>I</i>	<i>I</i>
3.98294×10^{-2}	1.0×10^{-1}	<i>I</i>

TABLE 7. METRES TO FEET. 1 metre = 3.28084 feet

	0	1	2	3	4	5	6	7	8	9	
1	3.3	6.6	9.8	13.1	16.4	19.7	23.0	26.3	29.5		1
2	32.8	39.4	42.7	45.9	49.2	52.5	55.8	59.1	62.3		2
3	65.6	72.2	75.5	78.7	82.0	85.3	88.6	91.9	95.1		3
4	98.4	105.0	108.3	111.6	114.8	118.1	121.4	124.7	128.0		4
5	131.2	137.8	141.1	144.4	147.6	150.9	154.2	157.5	160.8		5
6	164.0	170.6	173.9	177.2	180.5	183.7	187.0	190.3	193.6		6
7	196.9	203.4	206.7	210.0	213.3	216.5	219.8	223.1	226.4		7
8	229.7	236.2	239.5	242.8	246.1	249.3	252.6	255.9	259.2		8
9	262.5	269.0	272.3	275.6	278.9	282.2	285.4	288.7	292.0		9
10	295.3	301.8	305.1	308.4	311.7	315.0	318.2	321.5	324.8		10
11	328.1	334.6	337.9	341.2	344.5	347.8	351.0	354.3	357.6		11
12	360.9	367.4	370.7	374.0	377.3	380.6	383.9	387.1	390.4		12
13	393.7	400.3	403.5	406.8	410.1	413.4	416.7	419.9	423.2		13
14	426.5	433.1	436.4	439.6	442.9	446.2	449.5	452.8	456.0		14
15	459.3	465.9	469.2	472.4	475.7	479.0	482.3	485.6	488.8		15
16	492.1	498.7	502.0	505.2	508.5	511.8	515.1	518.4	521.7		16
17	524.9	531.5	534.8	538.1	541.3	544.6	547.9	551.2	554.5		17
18	557.7	564.3	567.6	570.9	574.1	577.4	580.7	584.0	587.3		18
19	590.6	597.1	600.4	603.7	607.0	610.2	613.5	616.8	620.1		19
20	623.4	629.9	633.2	636.5	639.8	643.0	646.3	649.6	652.9		20
21	656.2	662.7	666.0	669.3	672.6	675.9	679.1	682.4	685.7		21
22	689.0	695.5	698.8	702.1	705.4	708.7	711.9	715.2	718.5		22
23	721.8	728.3	731.6	734.9	738.2	741.5	744.8	748.0	751.3		23
24	754.6	761.2	764.4	767.7	771.0	774.3	777.6	780.8	784.1		24
25	787.4	794.0	797.2	800.5	803.8	807.1	810.4	813.7	816.9		25
26	820.2	826.8	830.1	833.3	836.6	839.9	843.2	846.5	849.7		26
27	853.0	859.6	862.9	866.1	869.4	872.7	876.0	879.3	882.5		27
28	885.8	892.4	895.7	899.0	902.2	905.5	908.8	912.1	915.4		28
29	918.6	925.2	928.5	931.8	935.0	938.3	941.6	944.9	948.2		29
30	951.4	958.0	961.3	964.6	967.8	971.1	974.4	977.7	981.0		30
31	984.3	990.8	994.1	997.4	1000.7	1003.9	1007.2	1010.5	1013.8		31
32	1017.1	1023.6	1026.9	1030.2	1033.5	1036.7	1040.0	1043.3	1046.6		32
	1040.9	1056.4	1059.7	1063.0	1066.3	1069.6	1072.8	1076.1	1079.4		

TABLE 7. METRES TO FEET (continued)

	0	1	2	3	4	5	6	7	8	9	
33	1082.7	1086.0	1089.2	1092.5	1095.8	1099.1	1102.4	1105.6	1108.9	1112.2	33
34	1115.5	1118.8	1122.0	1125.3	1128.6	1131.9	1135.2	1138.5	1141.7	1145.0	34
35	1148.3	1151.6	1154.9	1158.1	1161.4	1164.7	1168.0	1171.3	1174.5	1177.8	35
36	1181.1	1184.4	1187.7	1190.9	1194.2	1197.5	1200.8	1204.1	1207.3	1210.6	36
37	1213.9	1217.2	1220.5	1223.8	1227.0	1230.3	1233.6	1236.9	1240.2	1243.4	37
38	1246.7	1250.0	1253.3	1256.6	1259.8	1263.1	1266.4	1269.7	1273.0	1276.2	38
39	1279.5	1282.8	1286.1	1289.4	1292.7	1295.9	1299.2	1302.5	1305.8	1309.1	39
40	1312.3	1315.6	1318.9	1322.2	1325.5	1328.7	1332.0	1335.3	1338.6	1341.9	40
41	1345.1	1348.4	1351.7	1355.0	1358.3	1361.5	1364.8	1368.1	1371.4	1374.7	41
42	1378.0	1381.2	1384.5	1387.8	1391.1	1394.4	1397.6	1400.9	1404.2	1407.5	42
43	1410.8	1414.0	1417.3	1420.6	1423.9	1427.2	1430.4	1433.7	1437.0	1440.3	43
44	1443.6	1446.9	1450.1	1453.4	1456.7	1460.0	1463.3	1466.5	1469.8	1473.1	44
45	1476.4	1479.7	1482.9	1486.2	1489.5	1492.8	1496.1	1499.3	1502.6	1505.9	45
46	1509.2	1512.5	1515.7	1519.0	1522.3	1525.6	1528.9	1532.2	1535.4	1538.7	46
47	1542.0	1545.3	1548.6	1551.8	1555.1	1558.4	1561.7	1565.0	1568.2	1571.5	47
48	1574.8	1578.1	1581.4	1584.6	1587.9	1591.2	1594.5	1597.8	1601.0	1604.3	48
49	1607.6	1610.9	1614.2	1617.5	1620.7	1624.0	1627.3	1630.6	1633.9	1637.1	49
50	1640.4	1643.7	1647.0	1650.3	1653.6	1656.8	1660.1	1663.4	1666.7	1669.9	50
51	1673.2	1676.5	1679.8	1683.1	1686.4	1689.6	1692.9	1696.2	1699.5	1702.8	51
52	1706.0	1709.3	1712.6	1715.9	1719.2	1722.4	1725.7	1729.0	1732.3	1735.6	52
53	1738.8	1742.1	1745.4	1748.7	1752.0	1755.2	1758.5	1761.8	1765.1	1768.4	53
54	1771.7	1774.9	1778.2	1781.5	1784.8	1788.1	1791.3	1794.6	1797.9	1801.2	54
55	1804.5	1807.8	1811.0	1814.3	1817.6	1820.9	1824.1	1827.4	1830.7	1834.0	55
56	1837.3	1840.6	1843.8	1847.1	1850.4	1853.7	1857.0	1860.2	1863.5	1866.8	56
57	1870.1	1873.4	1876.6	1879.9	1883.2	1886.5	1889.8	1893.0	1896.3	1899.6	57
58	1902.9	1906.2	1909.4	1912.7	1916.0	1919.3	1922.6	1925.9	1929.1	1932.4	58
59	1935.7	1939.0	1942.3	1945.5	1948.8	1952.1	1955.4	1958.7	1961.9	1965.2	59
60	1968.5	1971.8	1975.1	1978.3	1981.6	1984.9	1988.2	1991.5	1994.8	1998.0	60
61	2001.3	2004.6	2007.9	2011.1	2014.4	2017.7	2021.0	2024.3	2027.6	2030.8	61
62	2034.1	2037.4	2040.7	2044.0	2047.2	2050.5	2053.8	2057.1	2060.4	2063.6	62
63	2066.9	2070.2	2073.5	2076.8	2080.1	2083.3	2086.6	2089.9	2093.2	2096.5	63
64	2099.7	2103.0	2106.3	2109.6	2112.9	2116.1	2119.4	2122.7	2126.0	2129.3	64
65	2132.5	2135.8	2139.1	2142.4	2145.7	2149.0	2152.3	2155.5	2158.8	2162.1	65
66	2165.4	2168.6	2171.9	2175.2	2178.5	2181.8	2185.1	2188.3	2191.6	2194.9	66

TABLE 8. CENTIMETRES TO INCHES

1 centimetre = 0.393701 inches

[illegible]

TABLE 9. KILOMETRES TO STATUTE MILES

1 kilometre = 0.621372 miles

[illegible]

TABLE 12. SQUARE KILOMETRES TO SQUARE MILES

1 square kilometre = 0.386103 square miles

[illegible]

TABLE 13. CUBIC METRES TO CUBIC FEET

1 cubic metre = 35.3148 cubic feet

[illegible]

TABLE 14. KILOGRAMMES TO POUNDS

1 kilogramme = 2.20462 pounds

[illegible]

TABLE 15. LITRES TO GALLONS

1 litre = 0.219976 gallons

[illegible]

1 metric ton = 0.984207 ton

[illegible]

1 quintal per hectare = 0.0398294 ton per acre

[illegible]

TABLE 18. NUMBERS PER SQUARE KILOMETRE TO NUMBERS PER SQUARE MILE
(or Square Miles to Square Kilometres)

1 square mile = 2.58998 square kilometres

[illegible]

TABLE 19. DEGREES CENTIGRADE TO DEGREES FAHRENHEIT

1° Centigrade = 1.8° Fahrenheit

	<i>Centigrade minus</i>										
	-0	-1	-2	-3	-4	-5	-6	-7	-8	-9	
-2	-4.0	-5.8	-7.6	-9.4	-11.2	-13.0	-14.8	-16.6	-18.4	-20.2	-2
-1	14.0	12.2	10.4	8.6	6.8	5.0	3.2	1.4	-0.4	-2.2	-1
..	32.0	30.2	28.4	26.6	24.8	23.0	21.2	19.4	17.6	15.8	..
..	32.0	33.8	35.6	37.4	39.2	41.0	42.8	44.6	46.4	48.2	..
+1	50.0	51.8	53.6	55.4	57.2	59.0	60.8	62.6	64.4	66.2	+1
+2	68.0	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	+2
+3	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2	+3
+4	104.0	105.8	107.6	109.4	111.2	113.0	114.8	116.6	118.4	120.2	+4
+5	122.0	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	+5
+6	140.0	141.8	143.6	145.4	147.2	149.0	150.8	152.6	154.4	156.2	+6
+7	158.0	159.8	161.6	163.4	165.2	167.0	168.8	170.6	172.4	174.2	+7
+8	176.0	177.8	179.6	181.4	183.2	185.0	186.8	188.6	190.4	192.2	+8
+9	194.0	195.8	197.6	199.4	201.2	203.0	204.8	206.6	208.4	210.2	+9
+10	212.0										+10
	<i>Centigrade plus</i>										
	0	1	2	3	4	5	6	7	8	9	

TABLE 20. PRESSURE: EQUIVALENTS OF MILLIBARS, MILLIMETRES OF MERCURY, AND INCHES OF MERCURY AT 32° F. IN LATITUDE 45°

Mercury in.	Milli- bars	Mercury mm.	Mercury in.	Milli- bars	Mercury mm.	Mercury in.	Milli- bars	Mercury mm.	Mercury in.	Milli- bars	Mercury mm.	Mercury in.	Milli- bars	Mercury mm.	Mercury in.	Milli- bars	Mercury mm.
27.02	915	686.3	27.82	942	706.6	28.62	969	726.8	29.41	996	747.1	30.21	1,023	767.3	1,050	787.5	767.3
27.05	916	687.1	27.85	943	707.3	28.65	970	727.6	29.44	997	747.8	30.24	1,024	768.1	1,051	788.2	768.1
27.08	917	687.8	27.88	944	708.1	28.67	971	728.3	29.47	998	748.6	30.27	1,025	768.8	1,052	788.9	768.8
27.11	918	688.6	27.91	945	708.8	28.70	972	729.1	29.50	999	749.3	30.30	1,026	769.6	1,053	789.6	769.6
27.14	919	689.3	27.94	946	709.6	28.73	973	729.8	29.53	1,000	750.1	30.33	1,027	770.3	1,054	790.3	770.3
27.17	920	690.1	27.97	947	710.3	28.76	974	730.6	29.56	1,001	750.8	30.36	1,028	771.1	1,055	791.0	771.1
27.20	921	690.8	28.00	948	711.1	28.79	975	731.3	29.59	1,002	751.6	30.39	1,029	771.8	1,056	791.7	771.8
27.23	922	691.6	28.03	949	711.8	28.82	976	732.1	29.62	1,003	752.3	30.42	1,030	772.6	1,057	792.4	772.6
27.26	923	692.3	28.05	950	712.6	28.85	977	732.8	29.65	1,004	753.1	30.45	1,031	773.3	1,058	793.1	773.3
27.29	924	693.1	28.08	951	713.3	28.88	978	733.6	29.68	1,005	753.8	30.48	1,032	774.1	1,059	793.8	774.1
27.32	925	693.8	28.11	952	714.1	28.91	979	734.3	29.71	1,006	754.6	30.51	1,033	774.8	1,060	794.5	774.8
27.35	926	694.6	28.14	953	714.8	28.94	980	735.1	29.74	1,007	755.3	30.53	1,034	775.6	1,061	795.2	775.6
27.38	927	695.3	28.17	954	715.6	28.97	981	735.8	29.77	1,008	756.1	30.56	1,035	776.3	1,062	795.9	776.3
27.41	928	696.1	28.20	955	716.3	29.00	982	736.6	29.80	1,009	756.8	30.59	1,036	777.1	1,063	796.6	777.1
27.44	929	696.8	28.23	956	717.1	29.03	983	737.3	29.83	1,010	757.6	30.62	1,037	777.8	1,064	797.3	777.8
27.46	930	697.6	28.26	957	717.8	29.06	984	738.1	29.86	1,011	758.3	30.65	1,038	778.6	1,065	798.0	778.6
27.49	931	698.3	28.29	958	718.6	29.09	985	738.8	29.89	1,012	759.1	30.68	1,039	779.3	1,066	798.7	779.3
27.52	932	699.1	28.32	959	719.3	29.12	986	739.6	29.92	1,013	759.8	30.71	1,040	780.1	1,067	799.4	780.1
27.55	933	699.8	28.35	960	720.1	29.15	987	740.3	29.94	1,014	760.6	30.74	1,041	780.8	1,068	799.8	780.8
27.58	934	700.6	28.38	961	720.8	29.18	988	741.1	29.97	1,015	761.3	30.77	1,042	781.6	1,069	800.1	781.6
27.61	935	701.3	28.41	962	721.6	29.21	989	741.8	30.00	1,016	762.1	30.80	1,043	782.3	1,070	800.4	782.3
27.64	936	702.1	28.44	963	722.3	29.24	990	742.6	30.03	1,017	762.8	30.83	1,044	783.1	1,071	800.7	783.1
27.67	937	702.8	28.47	964	723.1	29.26	991	743.3	30.06	1,018	763.6	30.86	1,045	783.8	1,072	801.0	783.8
27.70	938	703.6	28.50	965	723.8	29.29	992	744.1	30.09	1,019	764.3	30.89	1,046	784.6	1,073	801.3	784.6
27.73	939	704.3	28.53	966	724.6	29.32	993	744.8	30.12	1,020	765.1	30.92	1,047	785.3	1,074	801.6	785.3
27.76	940	705.1	28.56	967	725.3	29.35	994	745.6	30.15	1,021	765.8	30.95	1,048	786.1	1,075	801.9	786.1
27.79	941	705.8	28.59	968	726.1	29.38	995	746.3	30.18	1,022	766.6	30.98	1,049	786.8	1,076	802.2	786.8

INDEX

The index includes all matters of interest, but is, none the less, mainly topographical. Over so vast a territory, and on a map so relatively obscure, it is not easy to locate places of interest. For that reason all the towns mentioned, and to be found on the map, are given the latitudes and longitudes which correspond to the map plotting. The positions so defined should be within two or three minutes of the truth. All the territory concerned is east of Greenwich and most is north of the Equator. Hence, to economize space, latitudes (given first) are qualified only when they are S(outh), whereas longitudes, coming second, are left without qualification. Thus Douala $4^{\circ} 03'$, $9^{\circ} 41'$ is north of the Equator and east of Greenwich; Brazzaville $4^{\circ} 16'$ S., $15^{\circ} 71'$ is south of the Equator and east of Greenwich. Sometimes, where they do not appear on the map, place-names are indexed to a figure printed in the text.

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